

# Book of Abstracts



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### 30<sup>th</sup> BOBCATSSS Symposium

Data and Information Science: Book of Abstracts at BOBCATSSS 2022 Hybrid Conference,  
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## Preface

This year marks the 30th anniversary of the BOBCATSSS. The BOBCATSSS is an international, annual symposium designed for librarians and information professionals in a rapidly changing environment. Over the past 30 years, the conference has included exciting topics, great venues, interested guests and engaging presenters.

This year we would like to introduce the topics of the many papers presented in the Book of Abstracts for the first time in presence at the University of Debrecen and hybrid. The Book of Abstracts provides an overview of all presentations given at BOBCATSSS. Presentations are listed in alphabetical order by title and include speeches, Pecha Kuchas, posters and workshops.

The theme of BOBCATSSS is Data and Information Science. Data and information are the basis for decisions and processes in business, politics and science. Particularly important in the current era of digital transformation. This is exactly where this year's subthemes come in. They deal with data science, openness as well as institutional roles.

All seven of us students from Hanover are looking forward to three unforgettable days full of great experiences and are grateful to be part of the BOBCATSSS family this year.

We would like to thank the University of Debrecen for organizing and implementing this year's conference. This includes DEENK (University of Debrecen, University and National Library), DE HÖK (University of Debrecen, Student Union), DE IK (University of Debrecen, Faculty of Informatics) and DE BTK (University of Debrecen, Faculty of Humanities).

We would also like to thank the Faculty III: Media, Information and Design of the University of Applied Sciences and Arts Hanover for co-organizing and making this journey possible.

Have a great time at the conference and enjoy Hungary.

# Inhalt

Preface.....	3
Plenary Speakers.....	7
Gyöngyi Karácsony.....	8
Péter Baranyi.....	10
Christian Wartena.....	11
Presentations, Posters and Pecha Kuchas.....	13
A qualitative study of information anxiety and information avoidance in everyday life.....	14
Aging and Human Resource Management Practices for Knowledge Management: Bibliometric Analysis of the Scientific Production indexed in Scopus from 2001 to 2022.....	16
An overview of Data Science courses in Hungary and the Philippines.....	17
Analysis of Spotify Spanish spoken profiles in Twitter.....	19
APPetite for something new: the Katona József Library's mobile application.....	20
Book rental machines during the pandemic in Debrecen.....	21
Co-authorship at the BOBCATSSS Conference (2012–2021): an aspect of international professional interaction.....	22
Codeclub and the importance of workshops in public libraries.....	23
Comprehensive Topic Modeling of Research on Public Libraries and the Public Sphere.....	24
Current state of the bulgarian Open Access journals.....	25
Data professionals and how to become one.....	26
Data repositories of universities.....	28
Data Science Training in Higher Education in Hungary.....	30
Decolonisation as an information science problem.....	32
Developing digital competence as an opportunity and a challenge for libraries.....	33
Distinguishing between data and information in seeking knowledge and wisdom.....	34
English language teaching using literary texts in the virtual 3D space of the MaxWhere system.....	36
Evaluation of indexation consistency in publisher subject metadata.....	37
Examination of the effects of the pandemic on the digital transformation of the libraries, for the purpose of analysing the database transaction records of the integrated library management systems.....	38
Exploring the risks to our cultural heritage.....	39
FAIR Data: history and present context.....	40
How do university students get relevant information?.....	42
Information retrieval workshop.....	43
Introducing Tiny Videos.....	45

Is Information Audit still relevant in the Digital Age?.....	47
Institutional repository keyword analysis with web crawler.....	49
Legal Deposit Management Information System.....	50
Looking for the optimal mixture of traditional and e-learning methods in face-to-face and online mathematics education.....	51
Management of personal knowledge by the information professional in society 5.0.....	53
Organizational Knowledge Assessment: A Bibliometric Analysis of the Literature.....	55
Play and learn: introduction of robotics to the library.....	56
Presence of Open Science skills in learning outcomes at the LIS Study Programs in Croatia.....	57
Presentation of information connected to cultural heritage in virtual reality.....	58
Publications about Bibliotherapy on Open Access.....	59
Research data management in an university environment.....	61
Responsible development of AI in European Union.....	62
Semantic Web and Linked Data in Portuguese and Spanish undergraduate LIS curricula.....	63
Standard Errors? Measuring the extent of quotation errors in political science.....	65
Teaching data literacy in academic libraries.....	67
The characteristics and roles of “library as place” in Japan.....	68
The Epistemic Cultures of the Digital Humanities and their relation to Open Science: contributions to the Open Humanities discourse.....	69
The power of data: trusted sources and effective analytics.....	70
The use of Open Educational Resources at University of Library Studies and Information Technologies during the Covid–19 Pandemic.....	71
Web Archiving in Higher Education.....	73
Index of Authors.....	74

## Plenary Speakers

## Gyöngyi Karácsony



Gyöngyi Karácsony is General Director at the University and National Library, University of Debrecen, Hungary. She has fifteen years of professional experience in scholarly communication, open access and open science. She represents Hungarian university libraries in a number of national and international projects and committees. She is president of the Association of University Directors in Hungary. She has participated in OpenAIRE and COAR as national contact point, and she was the coordinator of the HUNOR (Hungarian Open Access Repositories, [www.open-access.hu](http://www.open-access.hu)) working group between 2008–2019. She is a member of the Open Science Working Group of the National Research, Development and Innovation Office responsible for creating a national policy on open science in Hungary. She is member of the governing board of HRDA, the Hungarian Research Data Alliance.

Gyöngyi Karácsony has extensive experience in coordinating electronic services, web service- and portal development, digitisation, and end-user training. Her current fields of interest and responsibility include open science, open education (facilitation and coaching techniques, training and skills development), human resources & capacities, research support, strategic planning, organisation culture and organisation development, quality management and workflow management, community building and social innovation. With her coordination and management, the university library has developed a CRIS-like system for the dissemination of scholarly output of the University of Debrecen (<https://tudoster.idea.unideb.hu/en>).

### **Title of the Plenary presentation:**

Dare to be Open: Transparency and Integrity in Science

### **Abstract:**

The 21st century has brought a paradigm shift in research and scholarly communication. Each and every aspect of the research lifecycle has been soaked with the idea of openness since the Budapest Open Access Initiative (BOAI, 2002). Twenty years later, we are talking about open education, open research ecosystem, EOSC, FAIR data and citizen science. Most of the stakeholders' experience, however, tells us about uncertainty, ambiguity and complexity – a feeling

of being lost in the jungle.

Let us dive into the deepness of culture, and have a look at the research enterprise through the lenses of transparency and integrity – the driving values of openness in science.

## Péter Baranyi



Péter Baranyi established the Cognitive Infocommunications concept around 2010. It is a scientific discipline today. It has an annual IEEE International Conference and a number of scientific journals special issues. It focuses on the new cognitive capabilities of the blended combination of human and informatics. He invented the TP model transformation that is a higher-order singular value decomposition of continuous functions. It has a crucial role in nonlinear control design theories and opens new ways for optimization. He is the inventor of MaxWhere that is the first 3D platform including 3D web, 3D browser, 3D store, and 3D Cloud. His research group published a number of journal papers firstly reporting that users get 40–50% better effectiveness in 3D digital environments. These results got a very high international impact within a few years. In 2019, he established a laboratory and research group at Széchenyi István University, which provides unique research opportunities internationally, and the per capita publication and citation are outstanding. From July 1, 2021, he is the Rector of Széchenyi István University.

**Title of the Plenary presentation:**  
Cognitive Infocommunications

**Abstract:**

Cognitive infocommunications (CogInfoCom, CogInfoCom.hu) investigates the link between the research areas of infocommunications and cognitive sciences, as well as the various engineering applications which have emerged as the synergic combination of these sciences. The primary goal of CogInfoCom is to provide a systematic view of how cognitive processes can co-evolve with infocommunications devices so that the capabilities of the human brain may not only be extended through these devices, irrespective of geographical distance but may also be blended with the capabilities of any artificially cognitive system. This merging and extension of cognitive capabilities are targeted towards engineering applications in which artificial and/or natural cognitive systems are enabled to work together more effectively.

## Christian Wartena

Christian Wartena studied computational linguistics in Nijmegen (Netherlands) and Potsdam (Germany), where he received his doctorate in 1999. He worked for companies in Heidelberg (Germany) and Enschede (Netherlands) on machine translation, keyword extraction, information retrieval and knowledge transfer. Since 2011 he has been professor for language and knowledge processing at the Hochschule Hannover – University of Applied Sciences and Arts. He leads various projects in the field of natural language processing and has been the spokesman for the Smart Data Analytics research cluster since 2020.

**Title of the Plenary presentation:**  
Don't be afraid of Artificial Intelligence: realistic expectations for information specialists

**Abstract:**

Artificial Intelligence (AI) allows algorithms to take over more and more tasks that previously have been done by knowledge workers. Especially, much of traditional work of librarians and other information specialists seems now to be subject to automation. Though AI has made a huge progress in the past decade, the intelligence and possibilities of algorithms are still limited and not every task can be automated. Nevertheless, already now, AI is changing the working environment of information specialists and it will have even more impact in future: some traditional jobs for information scientists might become superfluous, but many new tasks arise: information technology needs information specialists itself.



## **Presentations, Posters and Pecha Kuchas**

# A qualitative study of information anxiety and information avoidance in everyday life

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Information anxiety can appear when people, during everyday activities, interact with a large amount of information which then leads to inability of processing or using information in appropriate way (Hartog, 2017). Some recent studies have shown that information overload causes not only information anxiety, but also avoiding of information especially during actual COVID-19 pandemic (Dreisiebner, Marz, & Mandl, 2022; Siebenhaar, Köther, & Alpers, 2020; Guo, Y. et al., 2020; Soroya et al., 2021). Kim et al. (2020) revealed that misinformation related to COVID-19 disease influenced the avoidance of information among respondents. Moreover, Fletcher, Kalogeropoulos, & Nielsen (2020) found that respondents neither wanted to watch the news dealing with COVID-19 on TV or listen to them on the radio, nor to use social networks or other web sources because they do not believe in information about disease. In general people usually avoid information which are not in line with their attitudes and beliefs (Golman, Hagmann, & Loewenstein, 2017). Besides mentioned studies this paper will present the research whose goal was to identify reasons of information anxiety and information avoidance while respondents search for information for different purposes in everyday life. The research was a part of a master thesis and it was conducted by the qualitative meth-

od (structured interviews) on 17 respondents from the city Požega (Croatia). Data was collected at the end of August and the beginning of September 2021. Research questions were: Why do respondents experience information anxiety during information search process? Which information do respondents avoid when they search for information? Do respondents avoid information about COVID-19 pandemic? According to the research results respondents mostly experience information anxiety when they search for health information, while most of them avoid financial information. As expected one of the main reasons of the respondents' information anxiety in their search for information is information overload. In addition, respondents indicated that they avoid information from web portals and social networks because they want to keep personal peace. Some respondents reported that they are not interested in information about COVID-19 pandemic due to contradictory information from different sources. Information literacy skills such as choosing and evaluation of credible sources are useful in facing information anxiety and the avoidance of information. Despite the qualitative methodology and a small sample of respondents, this research gives interesting insights and could be a starting point for the larger quantitative study.

**Keywords:** information anxiety, information avoidance, COVID-19, qualitative study, Croatia

**Topics:** Information and Data Literacy

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# Aging and Human Resource Management Practices for Knowledge Management: Bibliometric Analysis of the Scientific Production indexed in Scopus from 2001 to 2022

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Improved health and quality of life have increased life expectancy, accelerating global demographic aging. Any nation in the twenty-first century should be concerned about this issue. This shift impacts how organizations see their employees and the labor market world. It is necessary to retain older employees since they hold most of the organization's knowledge, which must be transferred and managed by younger generations. The present study aims to conduct a bibliometric analysis inherent to assessing the concepts of aging and human resource management practices for knowledge management using the Scopus database and the Bibliometrix R software. The Scopus database has been used to gather information on the annual scientific production, the type of sources published, the nation of publishing,

the collaboration between countries, the most cited countries, and the most relevant authors and journals. Bibliometric analysis was used in this study to identify and define the scientific production concerning the work's subject. The following search terms were used: "KNOWLEDGE MANAGEMENT" AND "HRM" AND "AGING" AND "PRACTICES," using the Scopus database, restricting the search criteria to publications in final publication on the disciplines of Business, Management, and Accounting, published between 2001 and 2022. In recent years, there has been an increasing trend in scientific production on the topic addressed, peaking in 2021 but continuing since 2018, demonstrating that this theme has been discussed widely and has an importance and impact on the scientific community.

**Keywords** Aging, Knowledge Management, Human Resource Management, Bibliometric Analysis, Human Resource Practices

**Topics:** Information Management, Knowledge and Skills of the Data Professionals, Knowledge Discovery for Decision and Policy Making, Scientometrics, Scientometrics, Bibliometrics

# An overview of Data Science courses in Hungary and the Philippines

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Presentation type: in person

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The background and purpose:

Data, information, and knowledge are the basic components of librarian training. Collection, systematization, and service are based on these concepts. In the last decade, data operations and their systematization have become more and more widespread, and data science has emerged. Data science is covered in several fields, from informatics to data visualization and art courses. Higher education programs in most countries have three levels: bachelor, master's, and doctoral. This is also true for library and information science programs. The goal of our poster is to compare the data science programs offered at higher education institutions in Hungary, and the Philippines.

Specifically, our poster would like to provide information on the following:

Why is data science important? Why do we need to find a link between data science and Library and Information Science (LIS)? How do LIS students get the chance to learn data science? Is it being offered in LIS programs? Are data science courses integrated in LIS programs? Look into the qualifications of professors teaching data science (formal/informal).

Hungary:

There are five universities where the librarians of the future can study library and information science. Here, students enrol in undergraduate and graduate courses, and there is also a doctoral program being

offered. The general description of the courses applies to each institution and is available to anyone interested. Below are specific descriptions associated with a computer librarian (Ministry of Information and Technology, n.d.). - Ability to understand and interpret texts, tables, data series, visual texts divided by visual signs, typographic tools, and icons at a high level. - Ability to review and manage the traditional and electronic literature sources, scientific databases of each discipline, confidently use library databases and the tools for their operation. Although data management and data science were not so well known at the time of their completion, it is not surprising that specifics are not included in these descriptions. Thus, it is absolutely necessary to examine institutional training

Philippines:

There are around 80 library schools in the Philippines. The University of the Philippines School of Library and Information Studies is the oldest library school in the country and is recognized nationally as a center of excellence in LIS education. It is also the only iSchool consortium member in the Philippines. It offers elective courses on data science (UPSLIS, 2021). BLIS undergraduate programs contain ICT courses but data science may not be part of it (Commission on Higher Education, 2015).

Details of the methods: First, we will examine open access and available public curricula from the webpages of universities or schools. We will also look into the national qualifications frameworks or training and output requirements of the librarian pieces of training. Second, we shall present the data and process visualization to help us identify their similarities and differences.

Findings, discussion, and conclusions.  
Findings show that data science courses

**Keywords:** universities, data science education, Hungary, Philippines

**Topics:** Data Science in Education and Training, Information and Data Literacy

#### References :

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Ministry of Innovation and Technology. Hungarian higher education LIS courses descriptions. (n.d.). Hungarian higher education LIS courses descriptions. [https://www.felvi.hu/felveteli/szakok\\_kepzesek/szakleirasok/!Szakleirasok/index.php/szak/42/szakleiras](https://www.felvi.hu/felveteli/szakok_kepzesek/szakleirasok/!Szakleirasok/index.php/szak/42/szakleiras) (available: 2022.01.30)

UPSLIS. (2021). University of the Philippines School of Library and Information Studies. <http://upslis.info/>

are slowly being introduced in Hungary and the Philippines integrated into the Library and Information Science curriculum. Public and open access curricula help future LIS students to choose their path by giving them an opportunity to read available information. LIS faculty members are also given opportunities to explore and expand their knowledge so they can teach data science in the field of LIS.

## Analysis of Spotify Spanish spoken profiles in Twitter

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Twitter is a social networking site where brands create profiles and interact with their audience. Brands also look for new audiences to consume their products or services. In some cases, they create different profiles for different countries or linguistics regions. The written language is the major Twitter expression. Multimedia elements such as images or videos help to spread the message and the interaction with the audience. In this study, we analyze the different profiles of Spotify in the Spanish language addressed to different spoken Spanish countries. Spotify has different profiles on Twitter addressing the content to different spoken Spanish language countries. These profiles are addressed to Spain and South American countries such as Argentina, Chile, Colombia, Mexico. Finally, there is a profile under the name LATAM who is addressed to the rest of the Spanish spoken countries in South America. All these profiles have different audiences, having also differences in the number of followers.

In all these countries, Spanish is spoken with different linguistic variations. As a result, the message is different. Consequently, audience interaction and engagement may vary from one profile to another depending on the written language used. The analysis considers these Spanish linguistic variations. We perform a sentimental analysis of these Spanish-spoken profiles, looking for differences in Spanish variations. We also combine the analysis with topic modeling and the uses of hashtags. Spanish linguistic variations may influence the analysis but in the engagement of the profile itself too. Our results show that while messages are similar in the way they are written, engagement with the audience varies from profile to profile. We conclude that Spanish variations influence engagement and commercial companies should consider a similar strategy. We suggest not unifying under a unique spoken Spanish version for the promotion of products and services in Spanish spoken countries.

**Keywords:** Twitter analysis, Spanish variations, engagement, Spotify, sentiment analysis

**Topics:** Big Data and Data Mining

## APPetite for something new: the Katona József Library's mobile application

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Presentation type: in person

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The Katona József Library of Bács-Kiskun County has always placed great emphasis on reaching out to all age groups. In order to achieve our goal, we need to be informed and up-to-date with the latest trends and to be present on as many virtual platforms as possible. That's why, at the beginning of 2021, a few enthusiastic librarians of our institution thought that a library mobile app could be the next important milestone in our continuous development and renewal. All this experimentation and testing has finally paid off: the Katona József Library's mobile app is available on the Google Play Store from Autumn 2021.

It's no secret that our primary goal with our entirely self-developed, in-house app was to target young people, perhaps the hardest-to-reach age group for libraries. So, in addition to creating content specifically for teens (book reviews, games), we also wanted the look and feel of the app to be coherent and dynamic.

Of course, we did not want the app to replace our library's website, but to provide content that could be enjoyed on a smaller screen. As the application is easy to navigate and use, so that older people who are generally less familiar with the digital world will have no problems using it. For

those who are a little apprehensive, one of our tutorials promoting the app will give them all the help they need to become a confident user.

So what does our library app do? In addition to the Programme Guide, there's a dedicated menu with a regularly updated document guide. And with our ever-expanding thematic video selection, you can watch videos of our library programmes at any time. Of course, a library mobile app would be useless without a Catalogue menu, so webOPAC is also just a click away. With our Virtual Tour, which is unique among national library mobile apps, you can even take a look around our library from the comfort of your own home, sitting in your armchair. Games were also included in the app. We've thought of games for all ages, with four or four games for children, teens and adults. Puzzles are mainly related to the world of books, but there are also some puzzles on local history.

We hope that our innovation will live up to our expectations and will appeal to a wider audience than just young people. Our aim is to ensure that our application remains a popular and constantly renewing service in the long term.

**Keywords:** public library, application, mobile app, library app, innovation

**Topics:** Development of Data and Information Services

## Book rental machines during the pandemic in Debrecen

Béla Lóránt Kovács

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Presentation type: in person

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Our presentation examines the rental data of public libraries in Hungary during the coronavirus pandemic. We compare the data of Pécs, Győr, and Debrecen from January 2018 to April 2022. We are looking for the answer to the question of what similarities and differences there were between the data. We examine how the libraries reacted to the situation. We would

like to deal separately with the solution of the Méliusz Juhász Péter Library in Debrecen: the book rental machines. The machines also enabled contactless services during quarantine. They are connected to digital services, including mobile applications. Not only did they respond well to the problem during the epidemic, but they also proved useful after the epidemic.

**Keywords:** public library, rental data, pandemic, book rental machine

**Topics:** Tools, Techniques and Applications of Data Science

# Co-authorship at the BOBCATSSS Conference (2012–2021): an aspect of international professional interaction

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The purpose of this paper is to identify international co-authorship based on the analysis of the materials of the BOBCATSSS conference during 2012–2021. Methodology: The materials of the annual BOBCATSSS conferences were selected for analysis. Quantitative characteristics of co-authorship were determined on the basis of the conference materials texts and the bibliometrics method use. Scientific novelty is that international co-authorship is a priority area of professional

interaction. Conclusions: International co-authorship within BOBCATSSS conferences is not widespread. Only 18 papers have been prepared in ten years. The feature of the international co-authorship of LIS specialists remains the professional interaction between the leading countries. It is important and urgent to expand international cooperation through the preparation of joint publications, which will contribute to the formation of effective cooperation in the professional space.

**Keywords:** Library and information science (LIS), BOBCATSSS, Co-Authorship, international collaboration professional communication

**Topics:** Data Science in Education and Training, The Role of Libraries and Librarians in the Data Science Movement

# Codeclub and the importance of workshops in public libraries

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Public libraries offer workshops to spread knowledge beyond the books they offer. Public libraries in Catalonia have been offering programming activities for beginners organized by Code Club Catalonia for years, where college students voluntarily teach programming to primary and secondary school students through projects and activities that the organization Code

Club Catalonia makes available to educators. This paper presents my experience leading a group of students in this activity and the importance of workshops in public libraries to promote the use of these and to bring them closer to children and youngsters, based on statistical data, testimonials from the students I had and my own experience.

**Keywords:** programming, workshop, public libraries, primary school students, secondary school students, college students

**Topics:** Information and Data Literacy, Open Science, Open Access and Knowledge Justice

# Comprehensive Topic Modeling of Research on Public Libraries and the Public Sphere

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Against a background of social fragmentation and isolation, modern public libraries are expected to facilitate multicultural exchange, guarantee equal access to information, and promote critical public debate. In the field of library and information science, based on Habermasian public sphere theory from the 1960s, there has been considerable research over the past 20 years that analyzed how public libraries fulfill these functions. Research on the public library as a public sphere is expected to continue actively in the future. It is therefore important to clarify the knowledge structure of existing research in this area.

Studies that provide a comprehensive analysis of research on the public library as a public sphere include those by Vårheim et al. (2019) and Widdersheim and Koizumi (2016). However, previous reviews utilize qualitative methods. There is a need for a comprehensive review that more objectively analyzes the knowledge structure in this research field through quantitative methods.

The purpose of this study is to conduct topic modeling of the field of research on public libraries and the public sphere using LDA (Latent Dirichlet Allocation). This is in order to elucidate the knowledge

structure of this research area.

The source material used for topic modeling in this paper is the English-language literature included in the “comprehensive literature list related to the public sphere and public libraries” identified by Widdersheim and Koizumi (2019). For books that consisted of more than one research article, each article was counted as a distinct source. The total number of references analyzed was 128. In addition to the titles and abstracts, the full texts of the documents were included in the LDA analysis. Following best practices for LDA analysis, the number of topics and the results of LDA analysis for each topic was reviewed and considered. The authors qualitatively examined the results of these analyses using two-dimensional maps made by LDAvis. In the end, an LDA topic model consisting of 30 topics was successfully obtained. Furthermore, in order to clarify the knowledge structure in this research area (public library as a public sphere), the 30 topics were classified into five groups according to their characteristics. The five topical groups are: 1) creation of social connections, 2) language and cultural exchange, 3) social inclusion and democracy, 4) sites of deliberative democracy, and 5) theories of publicness and library policy.

**Keywords:** Public libraries, Public Sphere, Latent Dirichlet Allocation, Topic Modeling

**Topics:** Data Visualization, Intelligent Knowledge Production

# Current state of the bulgarian Open Access journals

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Open access is an initiative for the immediate and free online access to scientific results, provided without limitations imposed by copyright and other agreements with publishers. Open access to knowledge is on its way to become a priority area of development and is a logical choice for providing access to reliable information. It contributes to the development of a new way of communication through the free sharing of scientific publications to any interested reader. The idea of the possibility of e-publications, being available on the Internet free of charge to the end user dates back to the 1990s, when William Gardner proposed that psychology journals should be published online. He also emphasized the need for quality information.

Goal: The paper is divided into two parts: theoretical and practically analytical. The theoretical part presents the three key initiatives for the future of open access carried out during the meetings held in Budapest (2001), Bethesda (2003), and Berlin (2003). The analytical part describes the current development of the open access initiatives in Bulgaria, such as the project “Education for Tomorrow” by the Ministry of Education and Science, and the Bulgarian Portal for Open Science,

which is in line of the Bulgarian engagement to contribute in EOSC (European Open Science Cloud) and in the frame of realization of two national strategies – “Bulgaria National Roadmap for Research Infrastructure, 2017–2023” and NSDSR (“National Strategy for Development of Scientific Research in the Republic of Bulgaria 2017 – 2030: Better Science for Better Bulgaria”), etc. For a comparative analysis of the Bulgarian journals for the period 2005 and April.2022, the quantity and quality data were collected from the site of the DOAJ. The results are presented in tables and graphics, based on different criteria, including used license (form of Creative Commons), language, etc. The methodology for achieving the main objective of the study and solving the set research tasks include content analysis, comparative analysis, and synthesis of the obtained information.

Conclusion: Open access takes us back to the values of science: to help advance and improve society. The benefits of open access, open source, and open standards are numerous. Hence, the need for and implementation of institutional open access policies as well as suggestions for future development of open access in Bulgaria are discussed.

**Keywords:** open access, open science, DOAJ, Bulgaria, Bulgarian Portal for Open Science, open access journals

**Topics:** Open Science, Open Access and Knowledge Justice

# Data professionals and how to become one

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Data professionals are workers who collect, store, manage, and/or analyse, interpret, and visualise data as their primary part of their activity. Professions in data industry are one of the fastest growing professions. They provide information support for effective decision-making, they ensure quality and security of IT infrastructures and they help add value to the business.

It is a complicated profession due to rapid emergence of new methods and technologies for working with data. Therefore, it is important to distinguish different types of data professionals and the skills that they work with. There are two main differences in professionals working with data: those who collect, store and manage, and those who analyse and visualise data.

We singled out a few professions and analysed the job requirements for each: Data architect, Data engineer, Data analyst, Data scientist and Machine learning engineer. On the basis of job descriptions, there are several things employers always search for and that is: proven competence, analytical skills, technical skills, soft skills, domain expertise and seniority. Data architects' tasks include

integrating data within an organisation and guiding the design and development of data. Data engineer's tasks, on the other hand, consist of collecting, processing, storing and transforming data as well as ensuring the readiness of data for further use. The expert called Data analyst is in charge of analysing, visualising and interpreting and also reporting data to stakeholders. Data analyst's responsibility is validating, grouping and reporting data as an informative basis when it comes to decision-making. As data science is an interdisciplinary field, a Data scientist must possess knowledge in fields of machine learning, data mining and big data. Lastly, experts who often work together with Data scientist, Machine learning engineers, should be in control of creating, designing, implementing and deployment of machine learning models for the purpose of solving business tasks.

In this poster, on the basis of job descriptions, we will guide you through some of the types of data professionals as well as provide you with information on what soft and hard skills you have to possess in order to become one.

**Keywords:** data science, data specialists, data professionals, machine learning

**Topics:** Data Science and Cognitive Infocommunications (CogInfoCom), Data Visualization, Knowledge and Skills of the Data Professionals, Tools, Techniques and Applications of Data Science, Training for Data and Information Scientists

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# Data repositories of universities

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The background and purpose:

Although data is not only dealt with by libraries, many other organizations have worked on this issue from private companies to offices (eg the statistical office). The storage of data management and its provision to users is becoming more and more prominent in the field of library science and as a requirement for certain types of libraries in particular. The data are users or companies that usually organize their own collections, public actors or researchers. Direct residential use is not typical. Of the library types, scientific libraries and university libraries are closest to the groups that use the data typical of larger organizations. Thus, it is not new that repositories suitable for storing and providing data appear in connection with these institutions outside of private, corporate entities. The data produced in this presentation is new and represents new research. Based on the results, data repositories can operate alongside higher education institutions. However, there are several conditions for setting up such a data repository, both materially and organisationally. In our presentation, we present our planned data repositories to demonstrate operational parallels between European and US universities. Covering their organizational and material background, data management, and usage culture, we show why such parallels have not yet existed, and outline the reasons for this. Details of the methods: We use two

methods in our paper. One consists of the aggregate research of a qualitative study that summarizes the results of multiple interviews with the heads of several institutions (Eötvös Loránd University, the University of Debrecen, University of Szeged), in which the construction and operation characteristics of the data repository of Hungarian universities is explored. One of the interviewees will provide a firsthand account, constructing a parallel organization (lecture from the Dean of Library Services at Eastern Illinois University). In the other method, we test the operation of data repositories on the available interfaces as presented.

Findings, discussion, and conclusions. In the paper, we will show some practices from USA and Hungary, and compare them. We will present the topic along the following questions: 1. What are the characteristics of a university data repository? 2. What culture and basic knowledge is required to use it? How does the higher education institution ensure this? 3. How open are these repositories? 4. What funding system is needed for these repositories to work?

Our conclusion points in the direction that data repositories are more than collections. Their use, maintenance, and development expect special attention not only from librarians, but also from university lecturers, researchers, and managers/leaders.

**Keywords:** universities, data science education, data repository

**Topics:** Data Science in Education and Training, Information and Data Literacy, Open Science, Open Access and Knowledge Justice

# Data Science Training in Higher Education in Hungary

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Education, both socially and politically, is a perennial topic on which we can and should work a lot, because it is a crucial part of our life. Regardless of what we talk about primary school, high school, vocational school, or college, the question is the same everywhere: What to put in the curriculum, what to leave out of it, what is important in it, how we can update it and make it more practical, is it necessary at all etc. These question marks might all be familiar to us. This is no different in the Librarian and Information Scientist program. We may find that this activity is similar to the operation of a huge computer, in the service of culture. The proper people organize, sort out, search, and deliver the works that are stored here. Given this, it is not surprising that this field is closely intertwined with the field of informatics. The Librarian program also responded to this fusion, very positively. The sample curriculum has long included subjects such as Mathematical basics of information processing, Indexing Languages, Programming, Applications in the Office, Database Management, Web Page Development, Handling of Digital Collections, Data and Information Management. As a result, library and information scientists can find employment in a variety of fields in addition to libraries,

for example publishing companies, information service providers, information systems and technology companies. (University of Debrecen, 2018) The topic of my presentation can be interesting not only because of my personal experience of these courses, but also because the venue itself makes the event special. Debrecen is home to one of the most distinguished universities in the country, and has a wealth of services in the field of information technology. Here you can find a software development company, a company offering various IT solutions and even a data analysis company. What is more, the library plays a prominent role, as the University of Debrecen University and National Library (DEENK) is one of Hungary's national libraries, and the Méliusz Juhász Péter Library is perhaps the most important library in the region, not to mention the library of the Reformed University of Theology, which is significant from the point of view of church history and also adds to the local culture. The right city, therefore, is given for those wishing to take advantage of all aspects of training, and the questions to answer are: What innovations need to be introduced in the future to make this area more relevant? How much should we add to its significance, if at all?

**Keywords:** data science, education, library, librarian program, curriculum

**Topics:** Data Science in Education and Training

## Reference:

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Forrás: Debreceni Egyetem Informatikai Kar: <https://www.inf.unideb.hu/hu/node/90>

# Decolonisation as an information science problem

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Decolonisation efforts in libraries and museums often focus on goals of diversifying collections and reading lists. However, the influence of colonialism reaches beyond the bias in favour of works by white, western, male creators and into the fabric of the institution purportedly objective system in which those works are classified and recorded.

In this poster we highlight the biases inherent in commonly used classification systems for library collections and works of art (the Dewey Decimal System and ICONCLASS) and demonstrate how they

reinscribe both the oppressive power differentials of colonialism and a limited Eurocentric perspective, in which information is erased, skewed, and misinterpreted. We cite recent work done, especially in the anglophone world, to address the use of discriminatory language in classification systems and pose the question whether (additionally to improving our systems in this way) it should become our goal as information scientists to move away from the dream of a world in which all knowledge can be unified in one catalogue, to a world in which a plurality of classification systems exist in dialogue.

**Keywords:** decolonisation, knowledge justice, classification systems, sustainability

**Topics:** Citizen Science and Collaborative Knowledge Production, Open Science, Open Access and Knowledge Justice, Sustainability

# Developing digital competence as an opportunity and a challenge for libraries

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The digital age is increasingly transforming the skills and competences that enable individuals to successfully overcome the obstacles and challenges they face in everyday life and at work. The classical tasks of libraries also need to be re-evaluated and supplemented, as society's expectations are changing, the technological environment is changing, labour market expectations are changing, and as a result, there are expectations from society for which people need to be prepared, and libraries can become the perfect medium for this. The role of libraries is changing, and they have to find new areas of activity. Libraries in the 21st century are now multifunctional institutions, and their classic role as cultural mediators has been complemented (Kiszl, 2017). As representative institutions of information and culture, the role of libraries is to be involved in the development of citizens' competences, to prepare them for the changing labour

market environment and expectations resulting from the 4th industrial revolution (Lengyelne Molnár, 2020). This could be a pillar of the library of the future. The development of competences, including digital competence, is one of the areas where we can prove that libraries are just as necessary in the digital world. In my research, I am looking for answers to how digital competence is reflected in library strategies. In order to prepare libraries to engage in digital literacy development, it is necessary to explore what support and guidance libraries receive from national and international strategy makers. In order to do this, I will conduct a content analysis of library strategies, identifying the level of digital literacy in these documents. Strategic documents are an important part of the development of the profession and the institutions, so it is important that they also include digital competence development as a task.

**Keywords:** digital competence, libraries, librarians, library strategies

**Topics:** Knowledge and Skills of the Data Professionals, The Role of Libraries and Librarians in the Data Science Movement

# Distinguishing between data and information in seeking knowledge and wisdom

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Good practices in service science recommend considering principles encapsulated in data-information-knowledge-wisdom model (DIKW).

My main examples, that I use in clarifying my hypothesis, falls into the domain of information technology. Good practices of this highly knowledge-depending endeavor are repeatedly articulated in different editions of Information Technology Infrastructure Library (ITIL), in a series of volumes that contain explicit referral to DIKW model in thinking about management of knowledge.

Focusing on this domain and Library, it is possible to acquire various, elaborated situations of reporting data, analyzing information, formulating knowledge, and achieving wisdom for decision and policy making.

First, I would like to present DIKW model shortly in its original form (Ackoff 1989), then to suggest some viable interpretation of it in focusing on the main question of this paper: do we have a good reason to differentiate between data and information for the practical purpose of being able to gain firm knowledge and wisdom in decision grounded on this knowledge?

Drawing these definitional lines between data and information is nothing but entering some ongoing debate between theoreticians of the respective domains.

As in every “applied” theory, like applied

epistemology, applied ethics, etc., we should follow, ideally, a doubled enterprise that can be grasped in the following two question: Does our particular distinction between something and something else, built up on “purely” theoretical grounding equip us better tools to cope with related particular practical challenges in the concerned purposeful activity? Can a particular practical improvement of a specific practice be analyzed into a vocabulary that provides tribunal for theoretical models?

Definitions of theoretical terms like data and information become relevant in the operational practice of a service management when, for example, literacy of the respective field should be trained for people who are responsible of drawing data from databases, constructing reports grounded on available data and, finally, preparing analyses in view of continuous decisional process, with its characteristic stakes and stakeholders. In my paper I compare approaches to and challenges of trainability of data and information literacy. I am concluding that, if we can grasp those differences in abilities, competencies and excellencies that make real differences in the practice between treating, mining, preparing data and establishing and criticizing informational layer emerging from this data, then we may achieve mutual gain for both this very practice and its theoretical codification.

**Keywords:** data, information, literacy, knowledge, wisdom, decision

**Topics:** Information and Data Literacy, Intelligent Knowledge Production, Knowledge Discovery for Decision and Policy Making

# English language teaching using literary texts in the virtual 3D space of the MaxWhere system

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In our presentation we would like to give a short overview of the 3D virtual library project (3DVLM) which started seven years ago as part of the Cognitive Infocommunications (CogInfoCom) research. The original model was built on the hierarchical classification system of the ancient Library of Alexandria, the famous Pinakes which had been elaborated by the scholar-poet Callimachus in the 3rd century BC. Although the hierarchical organization is still essential, the current implementation of the model has a more complex organizational structure which makes use of the innovative 3D presentation features of the MaxWhere Seminar System.

As regards our main goals, we would like to improve English language skills of students, to help them develop reading comprehension in a foreign language, to motivate them to read classical literature and poetry, and, generally, to carry the message of ancient times to young generations. Our main idea is that language learning in advanced level can serve as a bridge between cultures if we carefully select, preprocess and provide interesting and valuable literary texts for the possible learners of the internet period in a flexibly

organized and spectacular way. First we selected and processed some Wikipedia entries about Callimachus and his works, and then built a comprehensive knowledge base of different texts and supporting materials. We also developed efficient navigation and access tools for the users such as timeline, navigation map of content units, a compiled list of keywords, and randomly generated language tests. We have been continuously updating the content and structure of our knowledge base with additional items (vocabulary and thesaurus entries, literary quotations, explanatory notes etc.).

We would like to summarize the classroom experiences that we gathered in teaching English as a second language for students of Computer science majors at the Faculty of Informatics, University of Debrecen in the academic year of 2020 and 2021. Our primary goal was to improve the students' linguistic competence and skills in English and to collect their ideas and recommendations about the content and structure of the learning material based on the 3DVLM in order to improve, complete and, if necessary, correct it.

**Keywords:** three-dimensional virtual library model (3DVLM), MaxWhere Seminar System, virtual learning environment, second language learning

**Topics:** Data Science and Cognitive Infocommunications (CogInfoCom)

# Evaluation of indexation consistency in publisher subject metadata

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With the purpose of investigating the attribution of subjects in publishers' metadata, this work aims at evaluating the indexing in the subject metadata of MercadoEditorial.org platform in order to verify the consistency of the indexing regarding the use to metadata of shared subject. To this end, the tools available in the platform that help assigning keywords were analyzed, and the consistency of indexing among the publishers integrated to the platform was verified through the application of the method of intrinsic evaluation of interconsistency in order to compare the indexing of the same work in MercadoEditorial.org published by four publishers: Ciranda Cultural, IBEP, Excelsior Editora and Via Leitura. The chosen book was "The Alienist" by Machado de Assis, a classic in the Brazilian literature.

Results showed that Ciranda Cultural, Excelsior Editora and Via Leitura publishers assigned in their keywords terms as the title, author's name, characters' names and names of other books; excessive and repeated words, which were distinguished by being with or without accentuation, in the singular or plural. Other terms assigned are related to university entrance exams. It is concluded that the publishers analyzed showed a lack of vocabulary control by assigning terms in excess, without specificity and exhaustiveness that do not adequately cover the representation of the subject of the book. On the other hand, the lack of semantic, syntactic and morphological standardization of the analyzed terms impairs the representation of the book and can cause problems in its retrieval.

**Keywords:** Subject metadata, Publishing Market, Indexing evaluation

**Topics:** Development of Data and Information Services

# Examination of the effects of the pandemic on the digital transformation of the libraries, for the purpose of analysing the database transaction records of the integrated library management systems.

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The digital transformation of the libraries was sped up because of the limited opening hours of libraries during the pandemic all over the world. Maybe the most appropriate way to follow the changes of the customer's attitude in the libraries is to analyse the transaction records of the Integrated Library Management Systems. The databases of the Integrated Library Management Systems contain database transaction records, in addition to the bibliographic, authority, media and item records. These database transaction records are prepared by the computer program itself, preserving the information logged during the daily work. The most important data units of the database transaction records contain information about the loan event and the creation and deletion of the catalogue records. Some of the data transaction information are needed to be preserved along with the other catalogue data, hence it is obligatory according to the current international library standards. As the transaction records of the cataloguing events are preserved for an extended period of time, all the other

transaction records are handled the same way, among others the records of loan information. These records exist in the database, even though the loan transaction itself was terminated, maybe for years or even for decades. Analysing the hundreds of thousands of loan records in the databases we can establish trends and follow the changes of the past two years as well. The effect of the restrictions enacted by the authorities because of Covid 19, can be clearly seen, having examined these research data. The transaction record information is useful, not only to get recent information from the integrated library systems, but it can be serviceable in the future as well, thus we can safely say it is important to take care of the long-time preservation of these data, especially in the case the integrated library system is substituted. During a research, the author calculated the changing of the count of loan transactions of the past twelve years. As the employee of Qulto Ltd. the author could examine databases of more than two hundred libraries in Hungary and in its neighbouring countries.

**Keywords:** Integrated Library Management System, Data mining, Database analysis

**Topics:** Big Data, Data Mining

# Exploring the risks to our cultural heritage

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Public collections, such as libraries, museums and archives, collect and preserve our written and material cultural heritage, thus enabling the constant development of human science and culture. They collect objects and documents that fall within the scope of their collection regulations. In most countries around the world, publishers send all their publications to the national library as part of the legal deposit service. Museums and archives take care of the protection of the cultural heritage that comes to them or is discovered by them, but unfortunately, from time to time, irreplaceable collections are destroyed, and in this case a piece of human history disappears. Think of the destruction of the Museion in Alexandria, the tragic fate of the Library of Princess Anna Amalia in Weimar, or the unique history of the Brazilian National Museum in Rio de Janeiro, which burned down in 2018. So we see that our existing collections are extremely vulnerable, and how a slice of our cultural heritage is waning as humanity progresses in its own history. My aim is to give a complete picture of the risks to the integrity of our cultural heritage.

**Keywords:** digital preservation, sustainability, cultural heritage, risk

**Topics:** Sustainability

My work can also be considered the next stage of a previous research. I have previously examined what will be the fate of personal digital legacies and whether current technology can truly preserve our digitally stored cultural heritage in the long run, or whether the 21st century will be remembered as the digital dark age in the perspective of some people. In my present research, I extend the topic of personal digital legacies to preserve the written cultural heritage of humanity, which includes more than just digitally existing data. Closely related to my current research topic are two other projects: the Federation of Library Associations and Institutions Risk Register, and the IFLA Preservation and Conservation Centers. A significant problem with the subject is that public collections are only able to preserve what they know existed, as there are still a lot of unexplored manuscripts. That is why one of the aims of my research is to examine the possibility of putting community knowledge at the service of exploring local history manuscripts – that is, what tools we have to map and preserve our written cultural heritage.

# FAIR Data: history and present context

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In this review, we discuss FAIR Data, why it exists, and who it applies to. We further review the principles of FAIR data, and how they are managed by research institutions. We also discuss the types of problems that researchers encounter, and what an information professional can do to assist them.

In 2016, the journal *Scientific Data* published the 'FAIR Guiding Principles for Scientific Data Management and Stewardship'. FAIR data are data that comply with the principles of findability, accessibility, interoperability, and reusability. The principles aim to guide data producers and publishers in the 21st-century digital environment, where data is the new gold. FAIR data tunes into the open science movement, and responds to the digital revolution to maximize the added value offered by scholarly digital publications. In 2018, the European Union ratified and promoted the principles with the report 'Turning FAIR into reality', aiming to use the analytical power of machines on a large scale and ensure transparency and social utility, both of data and other digital objects produced and used for research.

Researchers generate large amounts of data, which are necessary to generate knowledge and innovation. The integration and subsequent reuse of data accompanying publications were left to the discretion of the data owner. The emergence of the FAIR principles arose because there were no guidelines or standards created for the proper integration of research data into the digital ecosystem. Therefore, the

creation of the principles goes beyond collection, description, and archiving. Data management also contemplates long-term preservation, the generation of machine-processable metadata that facilitates discovery, evaluation, and reuse in further research.

At present, the vast majority of research centers subscribe to the principles. Furthermore, a Data Management Plan (DMPs) is required for the award of public funding, which must detail how the data will be managed, stored and preserved. But both centers and researchers face the arduous task of understanding the model, managing and implementing it. They must know data formats and standards. For a correct description and to facilitate data retrieval and interoperability, they must know about different types of metadata schemas. They must know about digital preservation and specific aspects of knowledge and information management. In addition, there are also ethical issues, intellectual property, and cultural differences. All these controversies translate into a huge extra workload for researchers, who only get a return in the form of citations.

For proper data management and compliance with FAIR principles, advanced knowledge of information management is needed. The creation of a repository, developing good practices that allow data management, promoting and facilitating open publishing, training in open science and data management; are subjects and

disciplines that the profile of professional librarians or information managers have. Information professionals can play a key role in the proper management of research

data and contribute to the achievement of the objectives described by the principles: making data findable, accessible, interoperable, and reusable.

**Keywords:** Data research management, FAIR principles, FAIR Data, FAIR implementation challenges, Literature review.

**Topics:** FAIR Data

# How do university students get relevant information?

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Presentation type: in person

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The web and learning have evolved parallel as technological changes have influenced the teaching and learning process. In the present research, I intend to extend this parallel with two other dimensions, namely, human 1.0–3.0 and influencer 1.0–3.0. The concepts are closely related to how the online world became popular abroad and its impact on learning and education. In the virtual world, the question also arises as to the significance of social media, and its latest, most popular actors, the “work” of influencers (which can be interpreted as fake news) in the lives of students in higher education. This activity is becoming more and more involved in our lives when we talk about professional opinion leaders. We are looking for answers to the following questions:

- What opportunities does the digital toolkit give to students? What kind of digital literacy do students think they need to thrive in the job market?
- To what extent does the IT literacy of pedagogical students differ from that of other students (lawyer, economics, doctor, technical)? What form of cognitive development is used for lifelong learning?
- To what extent is students' IT literacy influenced by cultural, material and family capital?

**Keywords:** ICT literacy, higher education, media literacy, Social media

**Topics:** Information Management

- To what extent do students' IT literacy develop during their training?
- How is information acquisition implemented in education? How conscious is the use of media among university students, what is their critical attitude?
- To what extent does online media penetrate the medium of formal-informal and non-formal learning? How does the influence activity of professional opinion leaders help students to think critically and thoughtfully?

The sample of the survey is made up of students from the University of Debrecen. The current situation, the pandemic, clearly demonstrates that advanced digital competence is essential for a confident presence in the online space and advanced critical thinking. Problems of digital inequality, division have surfaced, digital differences in technical skills between generations have intensified, and the constructed reality mediated by the media is becoming increasingly distorted. During this period, the relationship between the media and media consumers has changed greatly, and the interaction has intensified.

# Information retrieval workshop

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DOI: [10.5281/zenodo.6484810](https://doi.org/10.5281/zenodo.6484810)

Search engines are widely used for information retrieval in many large digital (text) collections such as the Internet. Consequently, information retrieval has become a core digital method – and a crucial skill – for the humanities and other research.

An ability to use the search engine and query formulation is the foundation of the search process. Effective query formulation improves search results and information interaction (White, 2016; Järvelin et al., 2015). Query formulation involves constructing a query for a search engine to express an information need. Typically, a user expresses it in the form of keywords and phrases. The queries are matched against a document collection by a search engine. The quality of results is heavily dependent on the query expression. Earlier research indicates that query formulation and reformulation can be one of the most problematic and challenging tasks for users (Rieh & Xie, 2006; White, Richardson & Yih, 2015).

**Keywords:** Information retrieval, Search engines, gamification, information literacy

**Topics:** Knowledge and Skills of the Data Professionals, Tools, Techniques and Applications of Data Science, Training for Data and Information Scientists

This event consists of a lecture about information retrieval with search engines and a workshop/hackathon, where a gamified approach is used to improve search engine literacy and searching skills (Arvola & Alamettälä, 2022). Exercises will be done language independently.

The main themes are 1) information retrieval in context (including for example information seeking and problem solving) and 2) information retrieval systems i.e., search engines (including for example queries, matching, ranking, evaluation, natural language processing, and user interfaces).

No prior knowledge about the topic is required. The workshop is hybrid and consists of online exercises using a standard web browser, thus own laptop is preferred (no software will be installed).

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## Introducing Tiny Videos

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Presentation type: online

DOI: [10.5281/zenodo.6487681](https://doi.org/10.5281/zenodo.6487681)

This Pecha Kucha presentation introduces a new way to disseminate scholarly work across our increasingly crowded, fragmented, and pandemonic information environment. Tiny Videos condense and translate an academic output (e.g. a theory, concept, or discovery) from its conventional, printed, documentary container to a dynamic, striking, and mnemonic video counterpart lasting just 15–30 seconds. Another way to think of this novel genre is as a breakthrough advertisement for a scholarly product; or, metaphorically speaking, as an amuse bouche. Jenna Hartel, an information scientist at the Faculty of Information, University of Toronto, believes that most scholarly publications fall short of their circulation potentials for three reasons. 1.) They are trapped in old-fashioned packages that demand increasingly unreachable background knowledge, time commitment, and concentration to penetrate. 2.) They fail to interconnect with the visual and musical tropes of popular culture, nor speak in its most impactful and universal languages of beauty, sensuality, and humor. 3.) And finally, the quintessential journal article is not a synchronized dancer or nimble traveler on the infrastructure of this information age—social media, video platforms, and websites. For all these reasons, Hartel invented the Tiny Video concept and exhibits 22 (and counting) on her YouTube channel, INFIDEOS; their thumbnail rep-

resentations appear below. Each compact multimedia artifact gives new life and forward momentum to landmark ideas in Information Science. Altogether, the collection stands as an accessible montage and buffet of the field's best thinking and intellectual property. Indeed, Tiny Videos can function as boundary objects that bridge academic disciplines, connect research to practice, and capture the imagination of an underestimated public. However, Hartel's primarily created the Tiny Videos to stimulate curiosity in her students, who often are not motivated to engage the scholarly literature in its current form. (She hopes the Tiny Videos become "ear worms," that is, ideas that get stuck in the head.) At a time when higher education is moving online, Tiny Videos are perfectly geared to enliven course websites, animate email correspondence, or enhance online lectures and activities. Admittedly, there may be barriers to the uptake of Tiny Videos. Scholars may lack the creativity, technical skills, or time to make them—though very capable talent is on hand through freelance marketplaces for creatives such as Fiverr. Or, Tiny Videos might seem to diminish or replace engagement with original writing—an objection that may be overly pessimistic. In addition to elaborating all that is above, the presentation will include three exemplar Tiny Videos.

**Keywords:** educational videos, multimedia, information visualization, information science pedagogy, YouTube, social epistemology, knowledge transfer

**Topics:** Data Science in Education and Training, Data Visualization

## Is Information Audit still relevant in the Digital Age?

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Presentation type: in person

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Information audit, focusing on information sources and flows, has appeared in the literature since about the 1980s. The authors of one of the first studies on information audit (Ellis, Barker, Potter, and Pridgeon 1993) date the first mention to 1976. However, as a topic for information specialists and a tool for information or knowledge management, it has evolved rapidly. Less than a decade later, Susan Henczel, a respected author of seminal publications in this area, stated that information auditing is an established tool of information management (Henczel 2000:211). According to Steven Buchanan and Forbes Gibb, the simplest justification for information auditing is the need to identify the information sources and information needs of a company (Buchanan and Gibb 1998:34) and then, of course, to relate them to each other.

However, unlike simple information needs analysis, which involves mapping available resources and the subjective needs of users, information audit also looks at how resources are and could be used, as objectively as possible. In this respect, information audit is one of the first essential steps of knowledge management (Henczel 2001:14 and 16). Rebecca Jones and Bonnie Burwell observe information audit as an important tool for the development of organisations and ask how it fits into the scope and responsibilities of information workers (Jones and Burwell 2004:53). Their observations were later confirmed by Huan Vo-Tran, who in turn argued that "in order to effectively and efficiently manage the information it creates, uses and

disseminates, an organisation must first undergo an information audit" (Vo-Tran 2011:271).

According to Susan Henczel, there is no clearly accepted procedure or methodology for information auditing because the differences between organisations in structure, nature and circumstances are significant (Henczel 2000:216). The literature offers framework methodologies, a comparison of which has been undertaken by Huan Vo-Tran. According to him, Susan Henczel's seven-stage model is the most appropriate and integrative because, in particular, it (1) draws on the seminal contributions of C. F. Burke and Woody Horton (1988), Liz Orna (1990), Steven Buchanan and Forbes Gibb (1998) and others, (2) focuses on the strategic direction of the organisation, and (3) takes into account the importance of executive management and project management (Vo-Tran 2011:275). Robert B. Frost and Chun Wei Choo later confirmed that Henczel's seven-stage model encompasses all other major models in some form or other (Frost and Choo 2017:1381).

Based on an analysis of the seven-stage model, according to available published literature, and a parallel case study of information audit teaching at Masaryk University and Silesian University, both in the Czech Republic, this paper asks whether the prominent information audit methodologies remain relevant in an era which emphasises the digital world, digital communication and digital technologies.

**Keywords:** information audit, information management, knowledge management

**Topics:** Information Management

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## Institutional repository keyword analysis with web crawler

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This study aims at investigating procedures of semantic and linguistic extraction of keywords from metadata of documents indexed in the Institutional Repository Unesp. For that purpose, a web crawler was developed, and such tool collected 325.181 keywords from authors, in all fields of knowledge, from February, 28th, 2013 to November, 10th, 2021. The preparation of the collection, extraction and analysis environment used the Python programming language, composed of three program libraries: library requests, which allows manipulation of hyperlinks of webpages visited through web crawler; BeautifulSoup library, used to extract HTML data through webpage analysis; and pandas

library, which has an open code (free software) and stands for providing tools for high performance data manipulation and analysis. The final listing consisted of 273,485 keywords, which represents 15.9% of the listing initially collected. Results indicated that the most recurring problem was the duplication of keywords, with 51,696 duplicated keywords, representing indicators of inconsistencies in the search for documents. It is concluded that the refinement of keywords assigned by authors eliminates the incorporation of a set of symbols that do not represent the authors' keywords with the same spelling, but with upper/lower case variations or lexical variations indexing different documents.

**Keywords:** Data analysis, Web crawler, Institutional repositories

**Topics:** Tools, Techniques and Applications of Data Science

# Legal Deposit Management Information System

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Presentation type: in person

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Legal deposit is one of the most significant collections of the Hungarian national cultural heritage and a very important part of the collection of the University of Debrecen University and National Library (DEENK). The first packages of the legal deposit collection arrived 70 years ago, in 1952. Anyone interested in science has the opportunity to use this library collection for research. This collection is invaluable. Nevertheless, due to low interest, little attention is given to the fact, how much work the cultural institutions, and within that to DEENK, have to do with it. There has always been a need for librarians to accurately document their work. That is why during the library processing work, the book carts have long been accompanied by the so-called "cart sheet". The paper-based cart sheet is the same age as the legal deposit collection in DEENK. Nevertheless, earlier there had been no need to process and extract information from the sheets about the parts or the whole of the workflow. In 2020 the administration of the current processes were digitized and in 2021 a manager information sys-

tem was set up to bridge this gap. The Library uses an integrated library system called Corvina. However, there are more work phases around the legal deposit that are not documented in the Corvina system, so a modernized version of the cart sheet accompanying the book carts should be kept. In this presentation we introduce our system and also the final dashboards as provided for the managers of the Library. A hybrid modeling methodology was applied. On one hand, we planned from the top by mapping and formalizing management questions, but on the other hand we used the bottom-up approach by building a data cube through an Extract - Transform - Load (ETL) process from the online cart sheet filled by the colleagues in an everyday routine. In this paper the intermediate steps are also presented: requirement analysis, source analysis, integration phase with the transformation processes. With the help of an entity-relationship model the working of the system is also demonstrated, as well as the dashboards of the final system.

**Keywords:** Legal deposit, University of Debrecen University and National Library, Data warehouse hybrid modeling methodology, Management information system, Reporting system

**Topics:** Knowledge Discovery for Decision and Policy Making, Tools, Techniques and Applications of Data Science

# Looking for the optimal mixture of traditional and e-learning methods in face-to-face and online mathematics education

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The fast development of technology has a big impact on the way teachers teach. Due to the recent COVID-19 outbreak, education had to move into the online space, which put the focus on the e-learning methods even more. On the other hand, most of the institutions were constantly looking for opportunities to return to face-to-face teaching, which implicitly suggests that this form of education has indisputable advantages. On the other hand, returning to the classroom, several teachers planned to take advantage of their online experience in on-site teaching too. All this indicates that both traditional and e-learning methods have their particular strengths. Accordingly, it seems appropriate to look for the optimal mixture of traditional and e-learning methods in different learning settings. A defining feature of traditional lectures is a so-called sense of agency which occurs, for example, when the visual image associated to the discussed subject is constructed on-the-fly by the lecturer and students are encouraged to actively participate in this process. A typical example of this is when teacher elaborates on a topic (using the black- or whiteboard) in front of the students in a conversational style. On the other hand, synchronous online lectures

are commonly implemented via videoconferencing tools where spoken exposition is supported by a slide show prepared in advance. The advantage of this setting is that teacher can share the slides, and also the recording of the attached explanation with students. The research we present in this paper focuses on students' subjective evaluation of two learning experiences in the framework of mathematics education: (1) teacher sought to preserve some key characteristics of traditional teaching in an online environment (for example, the visual image of the analyzed topic was created on-the-fly as a joint teacher-student production); (2) returning to the classroom, teacher continued to use some practices that were introduced during online teaching (for example, the place of the joint work continued to be the screen projected by the teacher and the created material was shared with students). Sixty undergraduate students were involved in the experiment and the study employed a questionnaire instrument to collect the data and student answers were analyzed using descriptive statistical methods. Results suggest that students appreciated both examined learning settings in terms of student satisfaction and perceived learning.

**Keywords:** e-learning, online learning, face-to-face learning, mathematics education, mutual benefits

**Topics:** Data Science in Education and Training

## Management of personal knowledge by the information professional in society 5.0

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Information is essential for human life, both in the interaction between individuals and between them and machines. On the other hand, information alone is not enough. It is necessary for individuals to link new information with what they already have, producing their personal knowledge. It is with this knowledge that the Information Professional will have to work in the 5.0 society. To perform work with knowledge, this Professional seems to need certain skills and competences. There are references that seem to give a clue about what the Information Professional needs to work with knowledge. Among these benchmarks is the “Records and Information Management Information Governance Practices” (“RIM / IG Practices”). In this reference, the Information Professional is inserted in professions such as information analysts (who research information on the network), documentalists, librarians, among others. On the other hand, there seem to be few references that deal with the work of the Information Professional with personal knowledge. These new skills and abilities must also communicate with new technologies, which in Society 5.0 are commit-

ted to contributing to the well-being of the individual. That said, the objectives of this work are to identify how the Information Professional will be able to work with personal knowledge in Society 5.0 and what are the skills and abilities that this Professional needs to have and/or acquire to perform this work. These objectives will be achieved through a literature review. The results of this study aim to contribute to a better understanding of the Information Professional's role in working with personal knowledge in Society 5.0. Over the years, there have been many discussions about which Knowledges and Skills are essential for these same professionals (eg, (ARMA, 2017; ECIA, 2005)), but no agreement has yet been reached as they have also changed and evolved, along with technologies. Society 5.0 is still a big unknown in this field of the information professional for a correct and improved knowledge management in the midst of rapid and constant evolution. However, this professional has an adaptation to new technologies and needs in, for example, organizations, schools and machine programming for better knowledge management.

**Keywords:** skills and knowledges, the information Professional, knowledge management, Society 5.0

**Topics:** Data Science from the Knowledge Management Perspective, Human-Computer Interaction and Data Science, Information and Data Literacy, Information Management, Knowledge and Skills of the Data Professionals, Training for Data and Information Scientists

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## Organizational Knowledge Assessment: A Bibliometric Analysis of the Literature

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Organizational knowledge management and assessment are one of the biggest challenges for organizations, particularly small and medium-sized enterprises (SMEs). Hence, the literature largely contributed to its importance. The present study aims to conduct a bibliometric analysis inherent to assessing organizational knowledge using the Scopus database and the Bibliometrix R software. It is intended to establish the number of existing publications on the topic under analysis, the trends in terms of publications and collaborations between countries, the most relevant publications and authors in the area, the definition of clusters associated with the research, and the interconnections between authors, keywords,

and publications. The 59 publications were then examined with Bibliometrix software, which included extensive parameterization of each component under evaluation. The analysis of the scientific production has established that 2015 was the year with the most publications in the area, with the United States of America, Italy, the United Kingdom, and Australia representing the countries with the most considerable contributions. One major limitation in this study could be addressed in future research. The study focused on a limited business, management, and accounting field, so it would be pertinent to understand how this topic has evolved, particularly in computer science.

**Keywords:** Assessment, Bibliometric Analysis, Knowledge Management, Organizational Knowledge, Scientometrics

**Topics:** Information Management, Knowledge and Skills of the Data Professionals, Knowledge Discovery for Decision and Policy Making, Scientometrics, Bibliometrics

# Play and learn: introduction of robotics to the library

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Our library, the Katona József Library of Bács-Kiskun County, has recently started to introduce the basics of robotics, currently with LEGO Mindstorms (EV3 and Inventor) kits. Our main objective is to show the public that robotics is not just a thing of the future, but an important element of our times. Sometimes spectacular and sometimes almost unnoticeable, its role will continue to grow in the near future, proving its usefulness for people of all ages to get to know it better. Through these activities, we can raise awareness of modern technical solutions and lay the foundations for understanding and thinking about the growing use of robotic technologies. As a library, our possibilities are of course limited, we see our work in this direction as a “first step”.

Considering different possibilities and needs, two types of programmes on robotics have been developed. The shorter, one-hour session will present the way to robotics in the modern sense, through examples of cultural and technological history and current applications. This will be followed by a playful trial of three different robots on display. This demonstration session has been advertised several times and has also been organised for visiting school groups and senior citizens.

For those who want to learn more about robots, we offer a weekly “Library Robot

Hour”, a club-like service where you can learn how to code robots, either with help, solving specific tasks, or independently at your own pace. LEGO robots are programmed using a simple, graphical interface, making it easy for anyone to learn. The club is free to all registered patrons, so we aim to provide a fun and useful experience for both one-time visitors and regulars.

We welcome small groups during the weekly sessions to ensure that everyone has enough time to work one-to-one. The knowledge to be imparted is based on a pre-developed but flexible session guide, which, although it contains increasingly complex tasks from session to session, is easy for newcomers to join. The tasks include both exact, guided tasks and examples that build on creativity and deepen the knowledge acquired.

We believe it is important to reach as wide an audience as possible, so we regularly hold one-hour sessions outside our library walls: we have already visited several small villages and primary schools in our county service area. This is an opportunity to bring robotics closer to those who have fewer opportunities, and to motivate them to visit the library, hoping to raise awareness of our other services.

**Keywords:** library, robotics, Lego, presentation

**Topics:** Open Science, Open Access and Knowledge Justice

# Presence of Open Science skills in learning outcomes at the LIS Study Programs in Croatia

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Open science is an ever-evolving phenomenon. Open science deals with the issue of availability of data and publications, which includes an open approach with which publicly funded research seeks to make available to all members of society and the general public. It is an umbrella term that includes a multitude of assumptions about the future of knowledge creation and dissemination. (Fecher & Friesike, 2014, p. 17). During their studies, LIS students acquire various knowledge and develop a set of skills that will prepare them for work in today's information environment. In 2020. LIBER's Digital Skills for Library Staff and Researchers Working Group published a visual presentation of the necessary open science competencies for librarians and researchers. The aim of this paper is to

explore the representation of skills and competencies for open science in learning outcomes in undergraduate and graduate study programs at the LIS studies in Croatia: Department of Information and Communication Sciences (Faculty of Humanities and Social Sciences (FHSS), University of Zagreb), Department of information sciences (Faculty of Humanities and Social Sciences (FHSS), Josip Juraj Strossmayer University of Osijek) and Department of information science (University of Zadar). This research indicated the need for greater inclusion of the concepts of scientific communication and open science in the learning outcomes at the level of programs in the study of information sciences in Zadar, Zagreb and Osijek.

**Keywords:** open science, LIS study program, open science skills, LIS studies

**Topics:** Knowledge and Skills of the Data Professionals, Open Science, Open Access and Knowledge Justice

# Presentation of information connected to cultural heritage in virtual reality

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Presentation type: in person

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Connected to and extending the studies described in the talk entitled 'Presenting information in three-dimensional virtual spaces' at BOBCATSSS 2020, Paris, we investigate issues related to visualization of information on cultural heritage in virtual reality.

We overview some basic facts on the virtual reconstruction of monuments and we discuss advantages of the presentation of information on cultural heritage in three-dimensional virtual spaces, in particular in virtual models of buildings of

historical importance. We consider visualizations in so-called fully immersive as well as in desktop virtual spaces and we point out the most important differences between them from the point of view of the presentation of information. We illustrate our observations with the help of the virtual reconstruction of the first National Theater of Hungary realized in the engine Unity (which strongly supports the creation and usage of immersive virtual spaces) and the desktop virtual reality engine MaxWhere.

**Keywords:** Presentation of information in virtual spaces, Virtual reality, 3D visualization, Unity, MaxWhere

**Topics:** Presentation of Data and Information in Virtual Spaces

# Publications about Bibliotherapy on Open Access

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Presentation type: online

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The project launched in 2020, titled „Study of Attitudes to the Therapeutic Potential of Reading in Atypical Situations for the Individual”, financed by the National Science Fund of the Ministry of Education and Science of the Republic of Bulgaria with Contract № KII-06-H45/2, positioned new scientific research tasks. The aim of the project is to study the recognition of the possibilities for bibliotherapy and the degree of meaningfulness of reading as a therapeutic tool for maintaining emotional and mental balance in times of crisis. By studying the attitudes during the imposed changes, which occurred following the pandemic of COVID-19 in the daily life of Bulgarian people, it will be established to what extent reading is used as a mechanism to support the preservation and achievement of emotional and mental balance in critical and unnatural situations for the individual. The sub-goal of the project is to increase the quality of information provision and systematization of knowledge in relation to bibliotherapy through the preparation of bibliographic resources. In the first stage of the implementation of the goal, the publications in Bulgarian were studied and an electronic thematic bibliography was created. It is available from the project website: <https://bibliotherapy.unibit.bg/bg/>, addressed to researchers, students, librarians, and wide audience. The aim is to promote the possibilities of bibliotherapy and to provoke interest in this poorly discussed topic. The paper summarizes the activities of

the second stage – a study of relevant resources in English, freely available online. Research efforts are focused on reviewing of publications on open access about bibliotherapy issues. The research methodology includes a documentary and content analysis (internal and online desk research) of the platforms of open access, DOJA, websites, publications and other information materials. The information seeking and the analysis of the type of publications allow to distinguish the three main groups of documents: articles in websites and forums (by journalists and non-specialists); articles by scientists published in their profiles on various platforms (ResearchGate, Academia.edu etc.) and scientific publications presented in scientific forums or published in open access scientific journals. The report provides a summary of quantitative results for open access publications on the topic and an analysis of the thematic scope of publications on bibliotherapy issues. The electronic thematic bibliography is enriched with publications in English, as a resource useful for users from the country and abroad. Also, it is enriching the learning content, available for distance education purposes of academic education (Erasmus + project DECriS (Digital Education for Crisis Situations: Times When There is no Alternative – 2020-1-HR01-KA226-HE-094685)). The publication of free access is an exceptional opportunity for unhindered dialogue on bibliotherapy issues in a scientific and applied context.

**Keywords:** Open Access, bibliotherapy, Bulgaria, electronic thematic bibliography, distance education

**Topics:** Citizen Science and Collaborative Knowledge Production, Data Science in Education and Training, Open Science, Open Access and Knowledge Justice

## Research data management in an university environment

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In today's data-intensive world, there is an increased discussion about the importance of processing research data, the reproducibility of scientific work, and the competencies associated with it. FAIR data management principles help researchers meet these data management requirements. The FAIRness of the data alone is not enough, researchers themselves need to be able to manage their data in an infrastructure that complies with FAIR principles. FAIR-based institutional data repositories play a key role in the research ecosystem because they offer toolkits and expert support to manage, publish and share research data on an international level.

The University of Debrecen University and National Library was the first in Hungary to establish an institutional data repository. The primary purposes of the data repository are (1) to gather the knowledge assets of the institution in one place, and (2) to fulfill and support the vision and expectations of the FAIR data management principles. Through the development of the data repository, we strived to include open science criteria, meet the

expectations of researchers and offer a customized institutional platform. A basic requirement for such a data repository is to comply with national and international standards, therefore the repository is developed upon an internationally accepted open-source basis (Dataverse) and use such RDA recommended data publishing guide.

At the BOBCATSSS 2022 conference we are planning to organize a workshop, where participants will gain an understanding of how a FAIR data repository, get acquainted with the fundamental elements, and familiarize with the DOI system for data works. In the workshop, participants can explore the different functions of the data repository through group work, such as access management, data upload, create a guestbook, licensing, version controlling. The workshop will provide firsthand experience with uploading data and choosing the discipline appropriate metadata schemas. The main outcome of the event will be to showcase how the data repository helps to enhance the visibility and impact of research results and researchers.

**Keywords:** FAIR data, FAIR data repository, data publishing, metadata

**Topics:** FAIR Data

# Responsible development of AI in European Union

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The aim of this paper is to give general overview of policies, guidelines and practices (projects) for responsible development of artificial intelligence (AI) developed and applied throughout the European Union (EU). Developing responsible and trustworthy AI has the potential to be one of the greatest aids in technological development, as well as human-technology interaction. Yet, it is also advised to be vigilant with the development of such all-encompassing systems that have high potential for innovation and transformative impact on society at large. Creating policies and guidelines for regulation and responsible development of AI has been one of the most important topics in the last few years amongst the scientific and legal community. With the rise of machine learning, innovation in the field of AI and uptake of smart technologies, that together facilitate the increase in efficiency and productivity of AI systems and AI-based solutions, there is a greater need to define stricter and more standardised policies and guidelines. This paper brings a unified overview, analysis and description of policies, guidelines and practices (projects) in the field of responsible AI in the EU. Also, this paper will include an overview of tools and methodologies applied in designing

responsible AI, as well as an overview of guidelines and initiatives of companies developing and/or using AI systems and AI-based solutions within the borders of EU. Special emphasis will be put on the issue of high-risk AI, i.e. potential security issues of AI (e.g. ensuring privacy and protecting sensitive data), and the importance of making algorithms compliant to social and ethical values (e.g. minimizing or avoiding bias). Known potential defects of biased coding could be interpreted as a whole new threat to privacy and socio-economic rights of EU citizens, and the more common use of advanced and complex AI technologies could make aforementioned defects even more pronounced than they are now. Since AI systems and AI-based solutions, if not regulated, could have potential titanic effect on socio-ethical foundations of society, the importance of responsible development of AI should not be dismissed or negated. The approach to developing and applying AI systems and AI-based solutions should be based on vigilance, utter caution, transparency and minimal or limited risk. Future of AI should be in the hands of people who will ensure that this technology enables and fosters a promising and safe future for human society.

**Keywords:** European Union, responsible AI, AI development, regulation, policies and guidelines

**Topics:** (Responsible) Artificial Intelligence

# Semantic Web and Linked Data in Portuguese and Spanish undergraduate LIS curricula

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According to the W3C, the Semantic Web provides a common framework that allows data to be shared and reused across application, enterprise, and community boundaries. It is a Web of data which includes dates, titles, part numbers and chemical properties and any other data one might conceive of.

Libraries and other information services need to take part in the Semantic Web, implementing linked data and fostering its capacity to completely remake future metadata work. Thus, Semantic Web and linked data are major trends in information representation and organisation. As information representation and organisation are core skills of information professionals, Library and Information Science (LIS) undergraduate degrees need to deliver knowledge and competencies about the Semantic Web and linked data.

Definitions of the Semantic Web and linked data will be presented and related to knowledge organization in a broad approach, and to information representation and organization, in a specific approach. Thus the need to include topics about the Semantic Web and linked data in knowledge organization programs will be underlined. The aim of this paper is to survey how the Semantic Web and linked data are included in the curricula of LIS undergraduate courses in Portugal and Spain.

Our approach deployed a data collection method, which included conducting ad hoc and comprehensive website surveys

from undergraduate degrees in library and information science in Portugal and Spain. First, an inventory of all the Portuguese and Spanish undergraduate degrees was performed on a generic web search engine. A total of 14 undergraduate degrees were identified, three in Portugal and 11 in Spain. All the information available on the webpage of each degree was analysed, including degree description, delivered skills and competencies and the degree study plan. Then a survey of the study plan was undertaken in order to identify the courses where topics about the semantic web and linked open data were included. The syllabus of each course was examined in the greatest level of detail possible regarding the course description, objectives, topics, and bibliographic references. We searched for expressions related to “Semantic Web”, “linked data” or “open linked data” and we also searched for references to Semantic Web technical standards such as RDF (resource description framework), SPARQL (SPARQL Protocol and RDF Query Language) and OWL (Web Ontology Language), and others.

The study hopes to present an overview of the way in which Semantic Web and linked data are considered in LIS undergraduate curricula and thus promote a better understanding of the need to update LIS education regarding Semantic Web and linked data as major trends in information organisation and representation.

**Keywords:** LIS education, knowledge organization, semantic web, linked data, metadata

**Topics:** Knowledge and Skills of the Data Professionals, Semantic Web and Linked Open Data

## Standard Errors? Measuring the extent of quotation errors in political science.

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In this poster we will show the method we have used to check the correctness of a controlled selection of citations from the top five journals in political science (2009 and 2019). We initially downloaded all references from each year, using Web of Science. From these we randomly selected 50 references from each journal. These 50 were then checked by the research team, expanding the dataset when a reference was cited more than once in the document.

The research team consists of 3 research librarians (LEB, MRJ and SS) and a professor of political science (JM). The work is still ongoing, but the method is established. Currently, we have completed work on the dataset from 2019 and we look forward to presenting our preliminary results.

The poster will illustrate the workflow from choosing the references to be controlled, downloading the references from Web of Science and comparing the contents of the article under scrutiny (the “document”) with the contents of the citation being checked (the “reference”). When the citation from the document has been checked, we code the reference in our spreadsheet (Fully substantiated, partially

substantiated, unsubstantiated and impossible to substantiate). In addition we also code other relevant attributes such as string citation (yes/no), reference type (book/ conference/article/other), pagination (yes/no), reference location in document (page number), location in reference (page number), negative/positive citation.

Our work draws heavily on Smith & Cumberledge (2020) and their work checking citations in general science journals. Their results from studying quotation errors suggest that these errors are more widespread than is commonly assumed. Our preliminary results show that political science also have some skeletons in the closet.

This work is part of an ongoing process where the library seeks to work closely with researchers, seeking to utilize the strength of all involved. We have previously published a study on the state of political science using bibliometric methods (Jensen & Moses 2021).

Once analysis is completed, we plan on publishing our findings in a journal article and publish our dataset in a data repository so that our work can be replicated.

**Keywords:** Research, Cooperation, Quotation errors, Political science, Open science

**Topics:** Development of Data and Information Services, Information and Data Literacy, Open Science, Open Access and Knowledge Justice, Scientometrics, Bibliometrics

**References:**

Smith, N. & Cumberledge, A. (2020). Quotation errors in general science journals. Proceedings of the Royal Society. A, Mathematical, physical, and engineering sciences, 2020 (476), 1–7. <http://dx.doi.org/10.1098/rspa.2020.0538>

Jensen, M.R. & Moses, J.W. (2021). The state of political science, 2020. European Political Science, 2021 (20), 14–33. <https://doi.org/10.1057/s41304-020-00297-4>

## Teaching data literacy in academic libraries

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Academic libraries are considered to be a repository for knowledge, teaching and research supporting tools. As research is changing, expanding and transforming, libraries must adapt in their research support methods, and keep widening the availability of resources and expertise. In recent years, data have become a more visible part of research, thus academic libraries must add data literacy to their research support portfolio and start offering resources for researchers to learn about data management and its benefits.

The EU funded project DaLiCo (Data Literacy in Context) is dedicated to increase the visibility, quality and usage of existing data literacy activities at a university level. The project aims at establishing collaborations between academic partners (departments, library, external partners) to convey data literacy competencies and contribute to the cultural change toward stronger data managing skills and openness.

The research data lifecycle (plan-collect-analyse-preserve-share-reuse) provides numerous intervention points where research support agents, librarians can play a large part in the discovery, understanding, and curation of research data.

Libraries can (1) provide access to data information (data availability, data sharing, data preservation, etc.), (2) offer services on research data management, and (3) support data science by providing access to training and instructional materials to help improve the knowledge and skill base surrounding data.

Connecting to data driven research and related data literacy education, DaLiCo develops a Train the Trainer program to enhance data literacy and skills education among researchers. The primary aim of the program is to build a modular teaching framework which provides methodological and content support for involved stakeholders (researchers, teachers, librarians) for transferring knowledge on data science. This program can also be integrated into the teaching and support toolbox of libraries. Librarians' expertise in data management and knowledge transfer can serve as the foundation for the training of the next generations of data scientists.

The presentation at the BOBCATSSS 2022 will showcase the DaLiCo Train the Trainer program and demonstrate how such program can be included in academic libraries' research support portfolio.

**Keywords:** data literacy, research data management, Train the Trainer

**Topics:** The Role of Libraries and Librarians in the Data Science Movement

# The characteristics and roles of “library as place” in Japan

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Libraries as “Places of Public”, where one can experience architectural expression and the legacy of the academic community, are not a new concept in Japan. Public libraries in Japan, have a long history and over the years they have uniquely evolved from “student study room style” (1950s) to “lending library style” (1960s and 1970s) to “network and multimedia style” (1980s to early 1990s), and then to “spatial and user-centered style” (late 1990s to 2000s). This paper would like to examine the characteristics and roles of ‘library as place’ in Japan. We would also like to use these factors to classify Japanese public libraries. By classifying them into types of libraries, we can elucidate the trends and features of the characteristics and roles of the places of public libraries in Japan. Our study used mixed methods of qualitative content analysis and cluster analysis.

We targeted 487 Japanese public libraries that had been inaugurated or renovated since 2010. Among these we were able to collect documents from 128 libraries. Documents collected for the analysis included (1) strategic plans, (2) service plans, and

(3) construction plans. Descriptions of the place and spaces were assigned codes using the qualitative analysis software MAXQDA. We then developed a typology of public libraries based on cluster analysis. We examined each cluster and classified them.

As a result of the qualitative content analysis, 5,581 codes were derived and divided into 13 code groups. Most libraries had two major code groups, “contribution to community building” and “meeting user needs through space development”. In other words, both code groups typically represent the characteristics and roles of Japanese public libraries today. In addition, cluster analysis was conducted on the code groups, and the libraries were classified into six library types: (1) modern basic, (2) progressive, (3) community-development, (4) information-centered, (5) civic and social-centered, and (6) traditional service-oriented.

Future research of each type could further clarify the actual role of library spaces for citizens and local communities.

**Keywords:** Library as Place, public libraries, qualitative content analysis, cluster analysis, Japan

**Topics:** Sustainability, The Role of Libraries and Librarians in the Data Science Movement

# The Epistemic Cultures of the Digital Humanities and their relation to Open Science: contributions to the Open Humanities discourse

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The humanities reflect a great disciplinary diversity, marked by different practices of knowledge production, which do not have a deep-rooted tradition of using computer-based methods in their research processes. Digital Humanities (DH) follow an interdisciplinary orientation, which can bring together a series of experimental approaches to some central questions of the humanities, applying computational methods, but not only. DH are comprehensive, interdisciplinary, and heterogeneous and are characterized by a great diversity of practices, which correspond to different epistemic cultures. The discourse around Open Science (OS) seems to reflect a more focused discourse on scientific research and communication practices, fundamentally inspired by the hard sciences, which does not seem to consider the peculiarities and characteristics of the digital humanities fully. The main goal of this work is to reflect on the inclusion of the epistemic cultures of DH in the OS

discourse. As specific goals, it is proposed (i) to describe the concept of epistemic cultures, particularly in DH, (ii) to identify the approaches adopted by OS and relate them to those of DH, and (iii) to discuss the need for the existence of a discourse dedicated to the opening of the humanities and to prove that DH contributes to it. An exploratory qualitative approach was adopted, by conducting a literature review aiming to contextualize the approach of epistemic cultures, particularly about DH and its relationship with OS. The practices and environment for building scientific knowledge of DH were related to the principles of OS, considering the multidimensionality of the scientific communication system. The conclusion is that the OS adopts a unified view of science, not considering the different epistemic cultures, especially about the digital humanities, and therefore, a specific discourse around the opening of the scientific process in this area is necessary.

**Keywords:** Digital Humanities, Epistemic Cultures, Open Science, Open Humanities

**Topics:** Open Science, Open Access and Knowledge Justice, Sustainability

# The power of data: trusted sources and effective analytics

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Clarivate has always been a trusted data provider for the academic community. In recent years it has largely expanded its data and solution portfolio that now span from the traditional area of publications with Web of Science data and in addition, the analytics solution InCites for any bibliometrics analysis, to patents, with Derwent World Patent Index that covers almost all patent authorities and related analytics solution (Derwent Innovation,

Innography and the Derwent Data Hub just to name a few).

Clinical trials, regulatory documents, deals and molecular interactions are indeed some of the data that can be retrieved and analyzed via Cortellis platform.

We will provide a quick insight on Data, human indexing, tools, expertise and Top Analytics for any users.

**Keywords:** trusted data provider for the academic community, bibliometrics analysis, Clinical trials, top analytics, human indexing

**Topics:** Information and Data Literacy, Knowledge Discovery for Decision and Policy Making, Scientometrics, Bibliometrics, Sustainability

# The use of Open Educational Resources at University of Library Studies and Information Technologies during the Covid-19 Pandemic

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DECriS project (Digital Education for Crisis Situations: Times When There is no Alternative) was accepted within the Erasmus+ Call launched in September 2020 supporting digital education readiness and creative skills. Project DECriS (<http://decris.ffos.hr/>, Contract Number: 2020-1-HR01-KA226-HE-094685), started on 1st of March 2021 and will run for a duration of two years. Digital Education (DE) has the potential to provide better teaching and learning opportunities, especially in regards to the unpredictable circumstances such as COVID-19, which revealed that many higher education institutions (HEIs) faced problems of technical, socio-psychological and didactic nature. The partners' consortium includes: University of Osijek, Croatia (coordinator); University of Barcelona, Spain; University of Hildesheim, Germany; University of Library Studies and Information Technologies, Bulgaria, and University of Zagreb Computer Centre, Croatia and four associate partners. The project's target groups are students and teachers at partner HEIs and European HEIs that offer programs in Library and Information Science (L)IS, which are approached widely in regards to the use of Open Educational Resources (OERs) and ways for promoting, enriching and improving of digital education for crisis situations, and beyond. The paper presents research results from

Survey, titled State-of-the-play of the use of OERs at European HEIs during the COVID-19 pandemic, implemented at University of Library Studies and Information Technologies (ULSIT), Bulgaria in June 2021 in the frame of DECriS project. The aim of this research is to identify state-of-play regarding the use of digital education and open educational resources in the context of COVID-19 pandemic on institutional level. The first part of our observations refers to the issue of digital education; the second part investigates the degrees of implementation and modes of use of open educational resources; and the third part explores the issue of institutional support provided to departments, lecturers and students regarding digital education and open educational resources. All three issues are assessed both in general and in the context of COVID-19 pandemic – the learning challenges, which we faced at AY 2019/2020 (summer semester) and AY 2020/2021. The analysis of the findings resulted in the creation of guidelines and recommendations to be used as the basis for further reflection on the institutional quality assurance policy and the improvement of the Quality of Education Management System at the ULSIT and partners' universities.

Acknowledgements: The paper is out-comes from the ERASMUS+ Project (DE-CriS - Digital Education for Crisis Situa-

tions: Times When There is no Alternative, Contract Number: 2020-1-HR01-KA226-HE-094685).

**Keywords:** Open Educational Resources, Digital education, University of Library Studies and Information Technologies, Bulgaria, DECriS Erasmus+ Project

**Topics:** Data Science in Education and Training, Development of Data and Information Services, Information Management, Training for Data and Information Scientists

## Web Archiving in Higher Education

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Presentation type: in person

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In the previous Bobcatss conferences, I was focusing on the education of web archiving (mainly from a professional library training perspective) and presented the ways of use of web archive collections for research purposes. In this short lecture I will offer another perspective, I would like to introduce in a short overview the ways of integration of web archiving to various higher education programs (in Bachelor and master levels) in different disciplinary frameworks. Several aspects of web archiving can appear in the context of Computer Science (open software development, web archive collections as big data and subject of data mining, data analyzing activities etc.), related to Library and Information Science (running web archiving projects, services in different scales

in various institutional environments). Digital Humanities is also relevant in this perspective (generate special web-archive collections for various research projects in analyzing text, visualize data etc.). Courses related to History and corresponding fields like Archival Science and Museology can focus on the features of web archive materials as historical resources and offer competences to get involved in the rapidly developing field of Web History. In my view these kind of elements in various disciplinary frameworks and perspectives can offer a special knowledge and valuable competences for university and college students and offers new ways of cooperation among lecturers and researchers in various fields.

**Keywords:** web archiving, higher education, big data, web history, digital humanities, library and information science

**Topics:** Big Data and Data Mining, Data Science and Cognitive Infocommunications (CogInfoCom), Data Science in Education and Training, Development of Data and Information Services, Information and Data Literacy, Semantic Web and Linked Open Data

## Index of Authors

Alamettälä, Tuulikki: p. 43  
Amorim, Vanessa: p. 16, 55  
Andrade E Cruz, Maria Carolina: p. 37  
Arvola, Paavo: p. 43  
Bertheussen, Lene: p. 65  
Boda, István Károly: p. 36  
Bogova, Hristina: p. 71  
Boldizsár, Dóra: p. 20  
Borges, Maria Manuel: p. 69  
Boté-Vericad, Juan-José: p. 40  
Bubnó, Katalin: p. 50  
Carballo-Garcia, Ana: p. 40  
Csapó, Noémi: p. 20  
Dani, Erzsébet: p. 20, 56  
de Sousa Lopes, Bruno: p. 16, 55  
Dimitrova, Svetoslava: p. 25  
Dombrovská, Michaela: p. 47  
Džoić, Zrinka: p. 57  
Eftimova, Sabina: p. 59  
Farkas, Csaba: p. 51  
Fazekas-Paragh, Judit: p. 67  
Ferreira, Beatriz: p. 69  
Garai, Zsolt: p. 34  
Gilbert Sempere, Sergi: p. 23  
Görögh, Edit: p. 67  
Grzunov, Laura: p. 57  
Hartel, Jenna: p. 45  
Igarashi, Tomoya: p. 68  
Javorović, Luka: p. 62  
Jensen, Magnus Rom: p. 65  
Jeszenszky, Zsuzsanna: p. 50  
Katahira, Isaque: p. 49  
Káta, Zoltán: p. 51  
Katano, Juri: p. 68  
Kawamoto, Marika: p. 68  
Kiss, Anikó: p. 61  
Koizumi, Masanori: p. 24, 68  
Kostyrko, Tamara: p. 22  
Kovatcheva, Eugenia: p. 71  
Lacović, Darko: p. 14  
Lévai, Gábor: p. 30  
Lima Rua, Orlando: p. 16, 55  
Marques Oliveira, Dalbert: p. 53  
Molnár, Dániel: p. 56  
Molnár, Georgina: p. 50  
Moses, Jonathon: p. 65  
Nagy, Gellért: p. 50  
Nagy, Zsuzsanna Timea: p. 51  
Nagy, Andor: p. 39  
Nemes, László: p. 17, 28  
Németh, Márton: p. 73  
Newell, Zachary: p. 28  
Osoianu, Nadia: p. 70  
Palameta, Lorena: p. 14  
Pavlova, Daniela: p. 71  
Pereira, Patricia: p. 53  
Popova, Elena: p. 59  
Radics, Krisztina: p. 33  
Šarić, Danijela: p. 26  
Shemaieva, Hanna: p. 22  
Simon, András: p. 38  
Solhaug, Solvor: p. 65  
Spotti Lopes Fujita, Mariângela: p. 37, 49  
Stojić, Eva: p. 26  
Sugeno, Yuki: p. 24, 68  
Szabó, Dóra: p. 42  
Szalobagyi, Adam: p. 61  
Szasz, Eniko: p. 70  
T. Nagy, László: p. 36  
Takács, Viktor László: p. 50  
Takashima, Waka: p. 68  
Terra, Ana Lúcia: p. 63  
Todorova, Tania: p. 59, 71  
Tolare, Jéssica Beatriz: p. 37, 49  
Tóth, Erzsébet: p. 36  
Widdersheim, Michael: p. 24  
Yap, Joseph: p. 17



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