

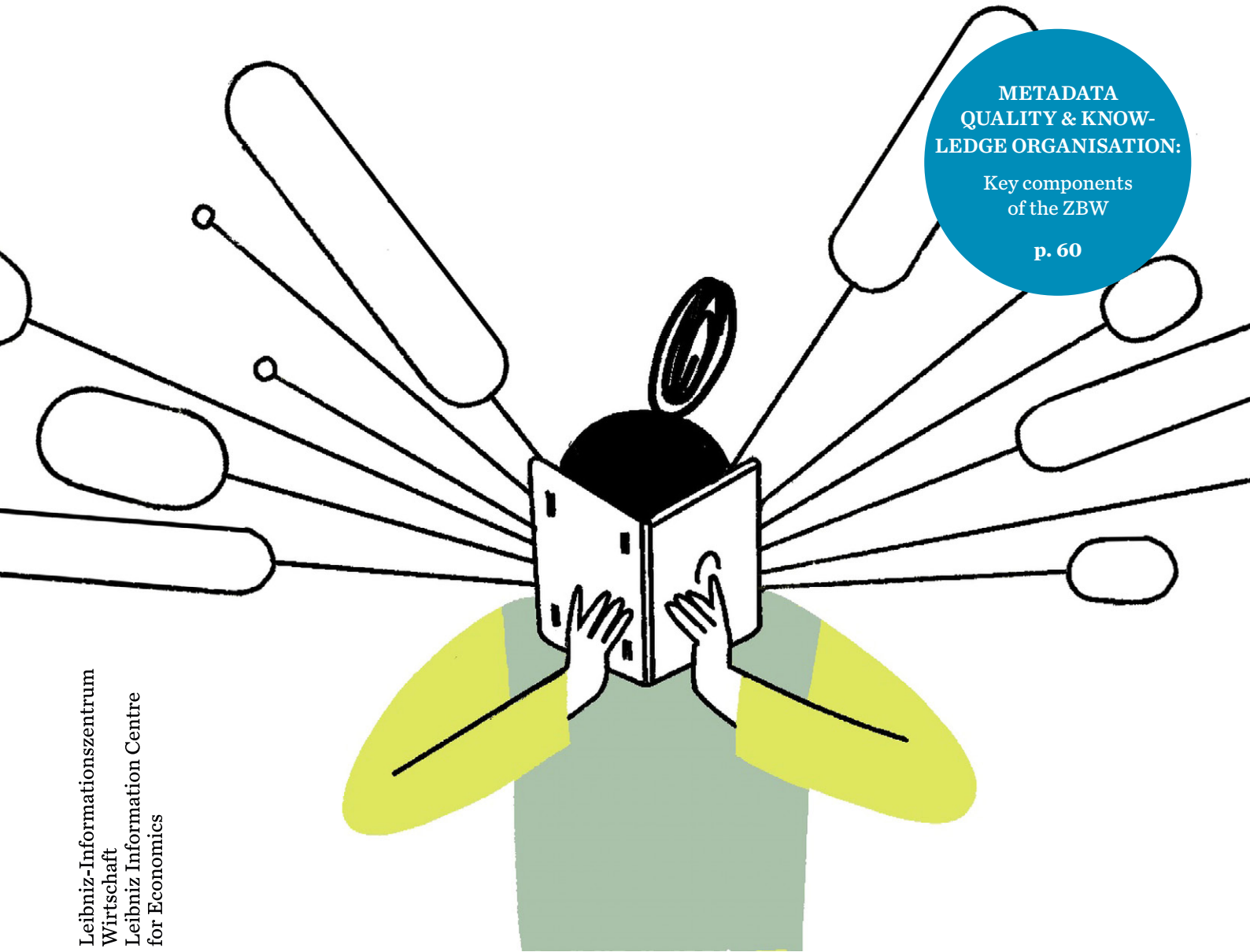
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ZBW Highlights from 2023

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QUALITY & KNOW-
LEDGE ORGANISATION:

Key components
of the ZBW

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Leibniz-Informationszentrum
Wirtschaft
Leibniz Information Centre
for Economics

ZBW

The ZBW in 2023:

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Dear readers,

2023 was an eventful year, characterised not only by planned activities but also by an unforeseen event: On the night of 4 to 5 April, the ZBW was the victim of a cyberattack of the kind that has unfortunately been seen more frequently at academic institutions recently.

In the course of this attack, parts of the IT infrastructure were encrypted. However, the ZBW was well prepared for such an incident, as it had been expanding its measures to increase IT security, particularly data security, for some time. As a result, only data, mainly the ZBW's own working documents, from the last four weeks before the attack were lost. To date, no ZBW data has been found on the Darknet. This prevented the usual loss of trust among users or publishers with whom the ZBW cooperates in such cases. It also became clear that the ZBW is optimally prepared for all technical risks associated with the digitalisation of science.

In 2023, the focus was on the development of new socio-technological infrastructures for economics, the provision of access to economics publications, research into user behaviour in digital spaces and the use of artificial intelligence for various tasks. The new infrastructures include, in particular, publication services based on business models that do not incur costs for either authors or readers. This annual report shows how this can work.

Equally exciting is the use of artificial intelligence for literature searches. Generative artificial intelligence in particular opens up new scope for the

ZBW to further innovate its services. The use of such technologies enables new services, such as the automated generation of summaries and literature overviews. In line with the open science paradigm, it is important to the ZBW that the data on which artificial intelligence methods are based is open in order to fulfil the requirements of trustworthiness and traceability as far as possible.


In addition to its specialist focus, the ZBW has also driven forward its development as an organisation, placing particular emphasis on building an inclusive organisational culture. As a learning organisation, the ZBW pursues the goal of establishing an appreciative, equal and non-discriminatory culture. In this context, the ZBW underwent a comprehensive diversity audit by the Stifterverband from 2022 to 2023, which was concluded with the successful award of the "Shaping Diversity" certificate.

Finally, we would like to thank the employees of the ZBW, who have shown great creativity and commitment in successfully overcoming this situation, especially in the period following the cyberattack. We would also like to thank our partner institutions, colleagues from other infrastructure facilities and our users, who have always expressed their trust in and support for the ZBW. This also applies in particular to our Supervisory Board and our Advisory Board.

We hope you enjoy reading this annual report and the innovative and novel projects from the year 2023 that it presents, and wish you inspiring insights!



*”Generative artificial intelligence
in particular opens up new scope
for the ZBW to further innovate
its services.”*

A portrait of Dr. Maria Henkel, a woman with long, wavy, light brown hair, smiling warmly. She is wearing a blue and white patterned button-down shirt tied at the waist. The background is a plain, light-colored wall. The image is set against a dark blue background on the right side of the page.

“FOR ME, ARTIFICIAL INTELLIGENCE IS NOT AN END IN ITSELF,

but a transformative tool for my research. It allows me to use new methods of analysis and opens up innovative solutions. The goal remains the same: to make a sustainable, positive contribution to the development of our modern society.”

DR MARIA HENKEL

Senior Scientist in the Digital Information Infrastructures program area

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22 The Open Access agreement between the ZBW and Taylor & Francis enables business researchers in Germany to publish their work in more than 2,000 journals at no extra cost.



32 The ZBW was the first Leibniz institution to undergo a comprehensive diversity audit by 2023.

VISION

*The **ZBW** sets national and international standards for modern information provision in economics.*

MISSION

The **ZBW collects and catalogues economic literature published worldwide. It offers comprehensive services that enable the efficient, effective and sustainable use of specialised economic information. It is a user-orientated scientific information infrastructure institution that is committed to modern and innovative requirements of information dissemination.**

251 employees from 10 nations
third-party funds 2023 13,1
full texts (extrapolated) 50%
media (total) 1,350 collaborations
international universities and
76 presentations at national
ferences 17 ongoing external
Magazines held in circulation
periodicals (digital) 538 digital
virtual visitors (total) 952,8
17 scientific events 31 super
Metadata in the EconBiz su

ons EUR 2,278,597 total
153,696 downloaded digital
7,733 long-term archived
ations with national and
and research institutions
l and international con-
ally funded projects 24,794
on (total) 22,084 current
igital databases 4,746,039
810 social media views
vised theses 12,388,589
subject portal

ZBW 2023 in figures

Web science researchers honoured with Best Paper Award



ZBW employees Dr Athanasios Mazarakis and Paula Bräuer received the Best Paper Award at the 7th Annual International GamiFIN Conference 2023 in Tampere, Finland, for their paper "Extracting Game Design Elements from Voice-Enabled Games: A Review of Amazon Alexa Skills". On 27 October 2023, Dr Steffen Lemke also received the Best Paper Award at the Workshop on Informetric, Scientometric, and Scientific and Technical Information Research in London. His research work, which deals with analysing scientific and technical information, was recognised for its innovative approaches and contribution to science. This recognition emphasises Lemke's role in the research community and the importance of his work to the fields of web science and scientometrics.

Wirtschaftsdienst switches from Springer to Sciendo

The open access journal *Wirtschaftsdienst*, published by the ZBW - Leibniz Information Centre for Economics, has changed publishers and will no longer be published by Springer from 2023. Instead, it will now be published by Sciendo, a publication service belonging to the De Gruyter publishing house. This strategic decision will make the journal,

which is aimed at researchers, practitioners and decision-makers in the field of economics, more widely available and accessible. The change emphasises the ZBW's commitment to open access and the promotion of academic exchange.

13th Intereconomics / CEPS Conference in Brussels: Focus on the future of EU finances

The 13th annual conference of Intereconomics and the Centre for European Policy Studies (CEPS) in Brussels in 2023 focused on the challenges and prospects of EU finances in the face of current crises. The participants discussed the impact of the COVID-19 pandemic and the war in Ukraine on the EU budget. Questions of flexibility and the legal feasibility of joint debt as well as the balance between long-term investment planning and short-term responsiveness were discussed. The conference sought approaches for a possible reorganisation of the EU budget in order to adapt it to the new challenges. The studies and conclusions of the conference participants were published as a forum in the November/December issue of *Intereconomics*.

Publishing data and code in economics

In a new nationwide online seminar, Professor Dr Marianne Saam and Sven Vlaeminck introduced students and pre-docs to the practice of publishing data and programme code in the fields of economics and management. In view of the increasing demands from specialist journals and funding institutions to make publication and project-related data and analyses publicly accessible, this seminar offered valuable insights. The aim was to enable the verifiability of the results and to promote the further use of the data and code.

Data access for research and policy advice in Germany – Forum in cooperation with the Verein für Socialpolitik

Access to economic and social science research data in Germany lags behind international standards. A survey of members of the Verein für Socialpolitik (German Economic Association) revealed a high level of dissatisfaction with the status quo. The contributions to the Forum in the November 2023 issue of *Wirtschaftsdienst* provide an overview of the problem and summarise the demands formulated in detailed position papers. It is important to change the legislation and enable better access to research data in Germany. To the time discussion: <https://zbw.to/oqtwm>

Schleswig-Holstein promotes open research data management



On 31 March 2023, 14 universities and research institutions in Schleswig-Holstein presented a concept for state-wide



Open Science Magazine

Since 2020, the ZBW has been publishing an online Open Science magazine, which focuses on the experiences of economic researchers in the areas of Open Access, Open Data, Open Educational Resources Open Source, Open Educational Resources and Open Science Communication. This magazine has established itself as an effective dialogue tool for knowledge transfer. The communication of NFDI developments in the economics consortia is also an important aspect. The focus in 2023 was on Open Science Education. Numerous interviews with economists, podcast episodes of "The Future is The Future is Open Science" podcast episodes and background reports show the many opportunities and best and best practices in the field of Open Science Education.

research data management, initiated by Kiel University. Klaus Tochtermann's expertise in research data management and his position in the Alliance for Cutting-Edge Research.SH contributed significantly to the development and implementation of the initiative. The aim is to make research data accessible and create the basis for innovative technologies such as artificial intelligence. The initiative is in line with national endeavours for research data infrastructure and represents an important step towards strengthening the scientific infrastructure in Schleswig-Holstein.

Topping-out ceremony at the Schlüterstraße campus

The listed Old Telecommunications Centre in Hamburg, an impressive building project in the field of science and research, will enter its next phase with the topping-out ceremony in October 2023. Once the extensive renovation and modernisation work has been completed, the building complex in Schlüterstraße will be the new home of the ZBW - Leibniz Information Centre for Economics at the Hamburg site. Since the start of construction in October 2021 and the laying of the foundation stone in October 2022, work has been progressing according to plan. The project is scheduled for completion in the

second quarter of 2025. In addition to the ZBW, the German Institute for Global and Area Studies (GIGA) / Leibniz Institute of Global and Area Studies and institutions of the University of Hamburg will also move into the modern innovation hub.

Dealing with materials from difficult contexts



The topic of the fifth workshop on retro-digitisation, which took place at the ZBW in Kiel from 11 to 12 May 2023, covered ethical and legal aspects as well as the resulting technical challenges of digitisation. A total of 56 participants engaged in lively discussions and shared a wide range of ideas, which they then took back to their respective institutions. The workshop was organised by the Staatsbibliothek zu Berlin - Preußischer Kulturbesitz, the TIB - Leibniz Information Centre for Science and Technology, ZB MED - Information Centre for Life Sciences and the ZBW.

New function in EconBiz specialist portal enables targeted search in leading business journals



Since June 2023, a new search tool has offered users the opportunity to search for specific topics in the most prestigious economics journals. This function allows search queries to be carried out only in the so-called "Top 5" journals in economics. Based on common rankings, the following journals are included in this selection: "The American Economic Review", "Journal of Political Economy", "Econometrica", "The Quarterly Journal of Economics" and "The Review of Economic Studies". In addition, EconBiz users can subscribe to their search queries as an RSS feed to receive notifications of new articles that match their search criteria. This feature is particularly useful for those who want to stay up to date. Based on the experience with the "Top 5" preselection, further special search queries can be designed in the future.

ZBW Open Library Badge Award



The ZBW was awarded the Open Library Badge 2020. This recognition emphasises the ZBW's commitment to transparency and accessibility in the scientific environment. The award recognises the ZBW's efforts to make research data and educational materials widely accessible and thus make an important contribution to the promotion of open science practices.

Federal Finance Minister Lindner explains his financial plans in the Economic Service

In the August issue of the ZBW's specialist journal "Wirtschaftsdienst", Federal Finance Minister Christian Lindner presented the draft federal budget for 2024 and the financial plan up to 2027 - a first for the journal. By providing a platform not only for economic researchers, but also for politicians and practitioners, the journal is broadening its spectrum and promoting a multidisciplinary dialogue. This approach makes it possible to link theoretical findings and empirical research with practical experience and political strategies. For the readership, this means added value through insights into the practical implementation of economic policy decisions and the opportunity to understand the effects of such decisions at first hand. In addition, this integrative approach can increase the journal's relevance in the economic policy debate and appeal to a broader target group.

New page in EconBiz Author Profiles focusses on Open Science

In March, the specialist portal EconBiz introduced a new topic page in Author Profiles dedicated to open science. This extension enables users to find researchers and articles, books or conference papers in the field of economics. The aim of the Author Profiles topic pages is to show a topic in all its facets and at the same time enable an exploratory search for researchers on this topic.

Efficient identification of authors: How EconBiz avoids confusion through algorithms

To distinguish between people with the same name, EconBiz uses unique identification numbers (IDs) from the national Common Authority File (GND). This makes it possible to determine whether, for example, Thomas Meyer, the marketing expert (ID 123), and Thomas Meyer, the financial econo-



mist (ID 999), are different people. The correct assignment of a publication to a specific ID helps to avoid confusion and ensure accurate citations, for example. Matching each publication to the correct ID is time-consuming, especially when IDs are missing. However, an algorithm can often determine the correct ID by analysing co-authorships. Based on the bachelor thesis "Examining concepts of author disambiguation: co-authorship as a disambiguation feature in EconBiz" by Swantje Wiechmann, co-supervised by Dr Arben Hajra (ZBW), the EconBiz 2023 team has developed and tested algorithms that aim to automatically fill in missing GND IDs. These algorithms analyse co-authorships, titles and keywords and generate suggestions for supplementing the GND IDs if certain defined similarity parameters are exceeded. The first tests of these algorithms showed positive results.

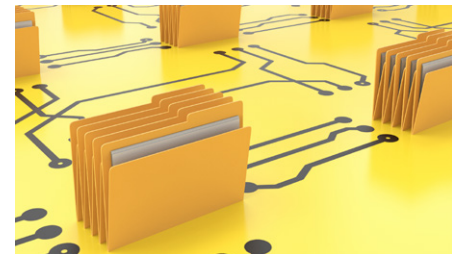
Human-centred AI for the world of work

In a joint research project between the ZBW - Leibniz Information Centre for Economics and partners from the "Connect & Collect" research project, scientists have developed the synergistic human-AI symbiosis theory (SHAST), which emphasises that the successful use of AI in the workplace requires close collaboration between humans and AI systems. SHAST is based on insights from five different disciplines and ensures that AI is designed to be human-centred to augment human capabilities and adhere to ethical principles. This theory emphasises the importance of ethics and collaboration for successful AI implementation in the workplace. The article is published in "Frontiers in Artificial Intelligence".

ZBW and other German information centres support Open Access communication with OA Switchboard

The German information infrastructure service providers TIB - Leibniz Information Centre for Science and Technology, ZB MED - Information Centre for Life Sciences and ZBW are funding participation in OA Switchboard for universities and research institutions until the end of 2024. This initiative improves the exchange of open access publication data and promotes the transparency of scientific research. OA Switchboard serves as a central platform to simplify communication between universities, research institutions, publishers and funders.

ZBW has been an official archive partner for the international ISSN Centre since February 2023



Since 2023, the ZBW - Leibniz Information Centre for Economics has been the first cooperation partner from Germany to provide proof of long-term digital archiving at the ISSN Centre in Paris. Other international "keepers" for the ISSN International Centre include the Library of Congress, the National Library of France, the British Library, the National Digital Preservation Program China and the National Library of the Netherlands. In particular, the ZBW is responsible for the long-term digital archiving of around 2,000 economics journals and other ongoing digital resources, which it catalogues in the ISSN portal.

Community survey in the nestor competence network

The ZBW heads the Community Survey working group within the nestor competence network, which is dedicated to digital preservation. In 2023, this working

group designed the questionnaire for a survey aimed at collecting data on national and international communities that are active in digital preservation. The revised questionnaire was used for a survey between June and November 2023. The evaluation of this survey is planned for spring 2024.

LibAnswers: More efficient communication at the ZBW

In the second quarter of 2023, the ZBW's user department reorganised its entire communication with users and other institutions. The ZBW now uses the "LibAnswers" ticket system from Springshare. This makes it possible to convert chats from the EconBiz subject portal into tickets for more complex questions and process them in one system. LibAnswers is administered by the ZBW itself and makes day-to-day work easier. Text modules and processing workflows are controlled centrally and do not need to be customised by the individual colleagues. A major advantage for users is the significantly faster response time. Other infrastructure facilities also receive faster and more comprehensive information, regardless of the presence of the specialist departments. The ticket system offers very good research and filtering options, for example to enable questions that have already been answered to be returned by telephone. Previously, these enquiries had to be noted down and researched at great expense, which often led to extreme delays.

Nestor Practitioners' Day at the ZBW



On 15 June 2023, the ZBW hosted the nestor Practitioners' Day 2023, which was dedicated to the topic of "Comparison and combination of digital long-term archiving systems". The event was attended by 58 experts who discussed the strengths and weaknesses of digital preservation systems in detail. They also discussed ways in which these systems can be used cooperatively for archiving various types of data.

Nestor is an initiative that deals with the challenges and solutions surrounding the long-term storage of and access to digital information. The competence network aims to pool knowledge and expertise in this area and make it accessible to a broad target group, including libraries, archives, museums, science and research.

In-depth application of UX methods: Successful customisation of library opening hours

In 2023, the ZBW's user department deepened the application of UX methods by conducting individual interviews with users in order to adapt the on-site services more specifically to their needs. As a result of these interviews, a two-month test phase was initiated to adjust opening hours. One result of these efforts was the desire of users to be able to use the library before 10 a.m. This initiative met with great interest in Kiel, which is why the ZBW decided to permanently adjust its opening hours and open at 8.30 a.m. on three days.



STRENGTHENING ECONOMIC RESEARCH *through innovative information infrastructures*

The ZBW has set itself the goal of developing, providing and sustainably operating modern socio-technological information infrastructures for the economic sciences. This includes established platforms such as EconBiz, which serves as a central point of contact for literature research, and EconStor, one of the world's largest open access repositories for economic working papers and publications.

In addition to these core activities, the ZBW is actively involved in the targeted development of infrastructures in the field of diamond open access business models in economics. In addition, the Journal Data Archive, an important data archive that makes a significant contribution to the reproducibility and dissemination of economic research, is being expanded and further developed.

These platforms are not only national and international resources for researchers and students in the field of economics, but also indispensable tools that facilitate access to scientific literature and research data. They support scientists in conducting innovative research and gaining new insights. Here you can find out how these socio-technological infrastructures have developed in 2023.

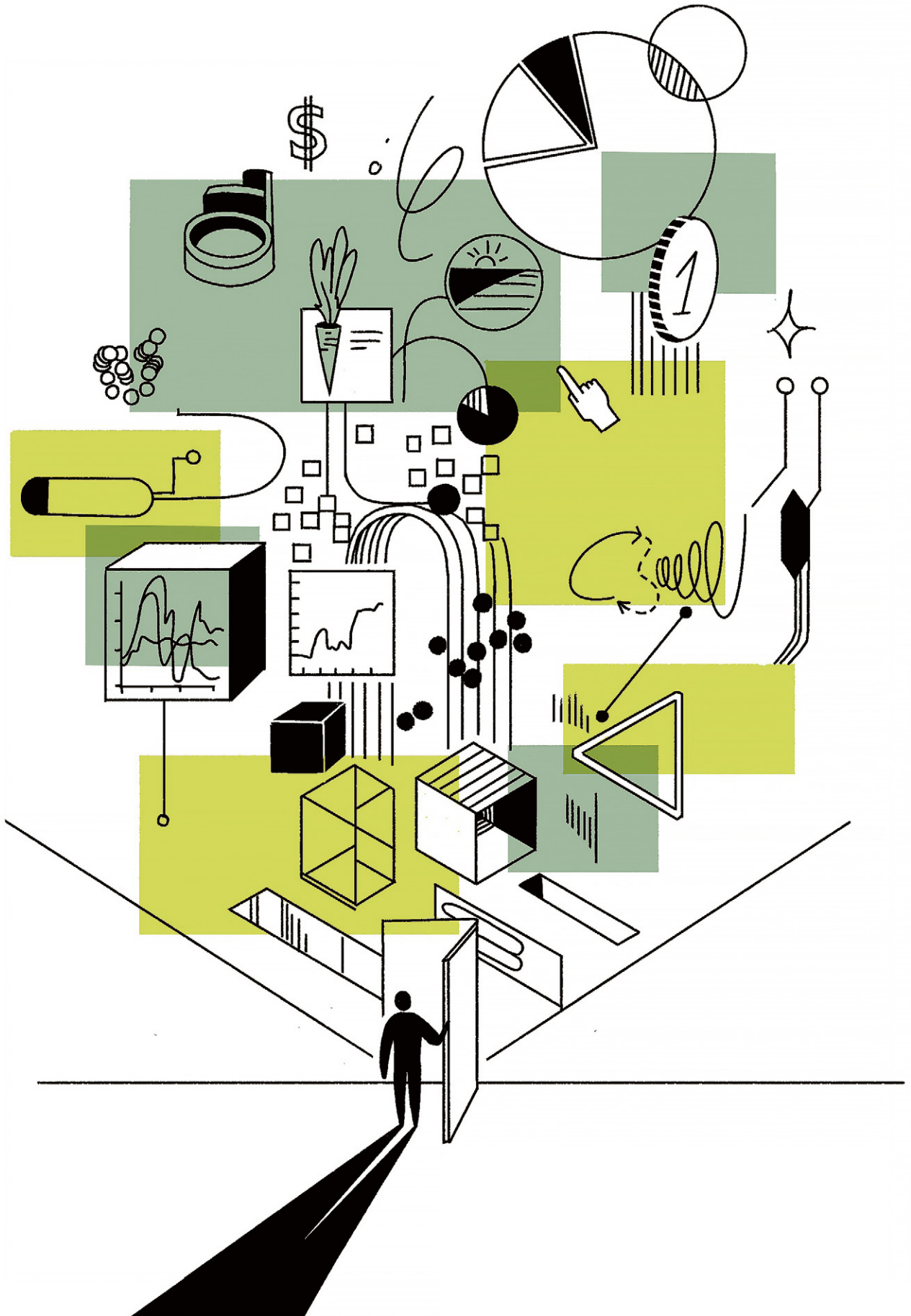
ZBW sets an example for Open Science

In 2023, the ZBW made a decisive contribution to the promotion of open science by supporting the transformation of the international, peer-reviewed "European Journal of Economics and Economic Policies: Intervention" (EJEEP) into a diamond open access journal.

The "European Journal of Economics and Economic Policies: Intervention" (EJEEP) is an important forum for studies in the field of macroeconomic theory, economic institutions and economic policies, which is particularly committed to the pluralism of research approaches and the productive exchange between different heterodox schools of thought.

EJEEP has taken a significant step towards a more open and accessible academic world by switching to the Diamond Open Access model in collaboration with the ZBW's Open Library Economics (OLEcon). This switch, which has been in force since the beginning of 2023, means that both readers and authors no longer have to pay fees to access or publish articles.

The publishing house Edward Elgar has transferred the decision-making authority for EJEEP to the academic editors. Edward Elgar Publishers will continue to produce and publish the journal as a service provider. All previous volumes published since the journal was founded in 2004 are now also available Open Access worldwide for free re-use.



OLEcon enables transformation of scientific journals

Prof Torsten Niechoj, Managing Editor of EJEEP, and his co-editors Prof Eckhard Hein, Prof Marc Lavoie and Prof Gennaro Zezza, emphasise the importance of this transformation for free access to scientific knowledge. For scientists and other interested parties, it no longer matters whether their own university library has taken out a paid subscription - once an article has been published, it can be found immediately and easily via search services.

ZBW Library Director Thorsten Meyer: "The promotion of science-led, non-commercial Open Access is an important building block in the ZBW strategy. We are proud that, together with the publishers, we can transform the journal EJEEP into Diamond Open Access." Edward Elgar also welcomes the collaboration and sees it as a sustainable model for smaller publishers who want to open up to open access.

The transformation of EJEEP into a science-led Diamond Open Access journal demonstrates the commitment of the editors and the ZBW to open science and free access to scientific information. Thanks to the cooperation with OLEcon and the service provider Edward Elgar, EJEEP will be able to reach even more readers and authors worldwide and make an important contribution to the scientific debate in the field of economics.

Three journals already included in OLEcon

Since the launch of OLEcon, three journals have been included: In addition to EJEEP, the German Journal of Agricultural Economics (GJAE) and Junior Management Science (JUMS) have been part of OLEcon since 2023. The German Journal of Agricultural Economics (GJAE) serves as a platform for scientific and innovative work in the field of agricultural and food economics and related disciplines. GJAE is the most important scientific journal for the agricultural and food sector in the German-speaking world. GJAE will be published in open access from 2024. Junior Management Science e.V. (JUMS) is an open access journal for young researchers. JUMS publishes the bachelor's and master's theses in business administration (BWL) that have received the highest ratings in a peer review process.

ZBW launched 2023 consortium to promote science-led open access journals in economic research

As part of the further development of this new socio-technological infrastructure OLEcon, third-party funding from the BMBF was acquired in the 2023 competition. The three-year "OLEKonsort" project is part of Open Library Economics (OLEcon) and serves to establish stable and sustainable fund-

ing for the OLEcon journals. In 2023, the ZBW began setting up the funding consortium and has already received a great response.

Consortium Open Library Economics - List of supporters

- Saxony Consortium under the leadership of the Saxon State and University Library Dresden (SLUB) with a total of 16 libraries:
- Humboldt-Universität zu Berlin - University Library
- University Library Johann Christian Senckenberg Frankfurt
- Mannheim University Library
- Duisburg-Essen University Library
- Cologne University and City Library
- Technical Information Library (TIB)
- Rhine-Waal University of Applied Sciences Kleve
- University Library of the Technical University of Munich
- Clausthal University Library
- Tübingen University Library
- Hamburg University of Technology University Library
- Georg-August-Universität Göttingen State and University Library
- University of Applied Sciences of the BFI Vienna – University of Applied Sciences for Business, Management & Finance
- Münster University and State Library
- University Library of the LMU Munich
- ZHAW Zurich University of Applied Sciences
- Bielefeld University Library

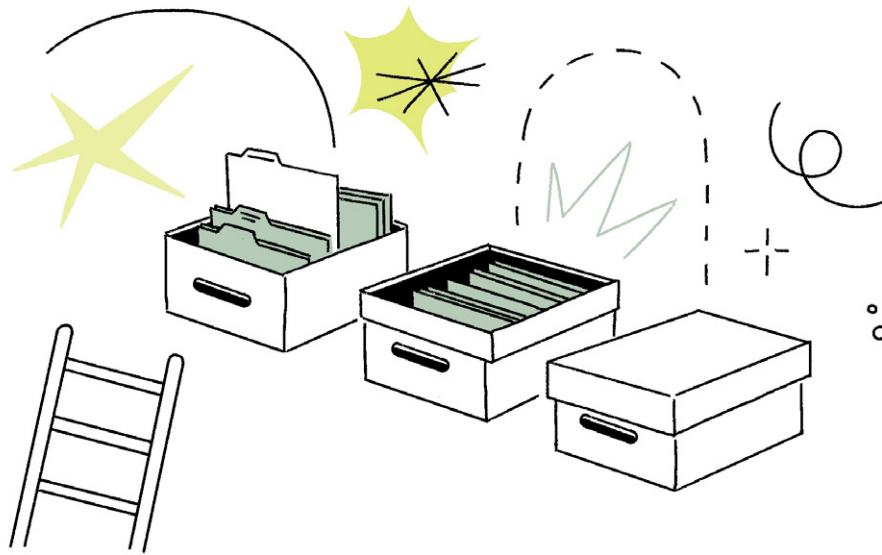
Thorsten Meyer, Library Director of the ZBW, explains: "Based on our many years of experience in the field of library consortia and the positive feedback from the launch of Open Library Economics, we are convinced that the establishment of a stable and reliable consortium marks the logical next step in the promotion of open and transparent scientific communication in economic research. The consortium represents a milestone in the further development of this important publication model."

Further information on Open Library Economics:

<https://olecon.zbw.eu/>

Science-led diamond Open Access refers to a form of scientific publishing in which the scientific editors and non-commercial publishers hold the rights to scientific journals. In addition, publication in such journals and access are free of charge. Instead, the publication costs are borne by a funding consortium of academic libraries. The concept is considered innovative and sensible as it improves the accessibility of research. However, science-led diamond open access is not yet mainstream. The challenge lies in first establishing this model and then maintaining it in a stable and sustainable manner.





Transparency and accessibility

At the beginning of 2023, a significant milestone was reached with the integration of the Journal of Applied Economics (JAE) data archive into the Journal Data Archive (JDA). By integrating this top international journal from the field of economic research, the ZBW - Leibniz Information Centre for Economics is now making one of the oldest and most comprehensive research data archives of a specialist journal available to the research community under an open licence. This practical report sheds light on this groundbreaking step and its effects.

The data archive of the Journal of Applied Econometrics is one of the oldest and most comprehensive data archives among the archives of economics journals. For more than 30 years, the JAE data archive has been collecting research data that form the basis of the journal's published research findings. The aim of this archive is to improve the reproducibility of published economic research and to publish robust research results.

From March 2023, the extensive datasets of the JAE data archive were gradually made available under an open licence in the Journal Data Archive. Around 1,400 data submissions had to be imported, which had been stored on a web server of the Editorial Board as accompanying material for published research articles since 1988 - i.e. for more than 30 years.

With the integration of the data archive of the Journal of Applied Econometrics into the Journal Data Archive, economics researchers can now reuse the data under an open licence to reproduce research results, use them for their own research projects or for teaching purposes and the training of young scientists.

The ZBW carefully prepared the unique data collection in order to make it accessible in the spirit of FAIR Open Data. This included assigning unique identification numbers (DOIs) to the data, enriching the data with extensive metadata and linking the data to the corresponding publications.

The collaboration between the Journal of Applied Econometrics, its publisher Wiley and the ZBW was a pioneering pilot project

for the integration of data archives of economics journals. With its Journal Data Archive (JDA), the ZBW offers the publishers of such journals a service for storing replication data on empirical work reliably and in accordance with the FAIR principles, thus contributing to the promotion of openness and transparency in research. FAIR stands for Findable, Accessible, Interoperable and Reusable.

Barbara Rossi, Editor-in-Chief of the Journal of Applied Econometrics, expressed her delight at the integration and emphasised the importance of the new features such as DOIs and direct links to the published articles. Graham Russel, Associate Journals Publisher at Wiley, emphasised the importance of the collaboration and stressed that it supports open science practices.

Conclusion: The integration of the JAE data archive into the Journal Data Archive of the ZBW marked a milestone in the openness and accessibility of research data in economics. It promotes the reproducibility of research and strengthens the importance of Open Science in the academic community. This step shows how cooperation between publishers, journals and scientific information infrastructures can advance research.

Further information: <https://journaldata.zbw.eu/journals/jae>

The Journal Data Archive is a reliable data repository for publication-related research data, including programme code and descriptions. The main aim of the service is to improve the reproducibility of published results from economic research. Reproducible research makes it easier to check the internal and external validity of results and thus makes a significant contribution to evidence-based policy advice, among other things. In addition, the availability of reproducible packages accelerates the scientific knowledge process. The ZBW's Journal Data Archive was used by nine journals in 2023. Four of these journals have an impact factor and are among the most relevant journals in the field of economics.

ECONSTOR 2023: CYBERATTACK AND RESILIENCE OF THE REPOSI- TORY



*An interview with the ZBW's Open Access Officer,
Olaf Siegert*

On 5 April 2023, the ZBW and thus also the EconStor repository fell victim to a cyberattack. How did the repository behave during the attack?

OS: During the cyberattack, EconStor was unavailable for five weeks, which was undoubtedly a serious interruption. During this time, however, we worked tirelessly with our IT infrastructure to restore the systems and gradually bring back the functionalities. We did have to reorganise our internal workflows, which initially took a little longer than before the attack. Nevertheless, we succeeded in making the services fully available again.

Are there any specific challenges that you encountered during the recovery phase?

OS: During the recovery phase, we had to deal with longer workflow times, which affected the processing of uploads and other processes. The interim data loss of almost 2,000 publications was another challenge that we had to overcome, and we overcame it. In the end, we managed to compensate for this loss completely.

That sounds like impressive resilience. How did EconStor's systems stabilise by the end of the year?

OS: The systems had actually stabilised again by the end of the year. We were able to overcome the initial difficulties and the functionalities returned to normality. Although the

downtime and the subsequent restart phase meant that we were able to manage around 20 per cent fewer uploads overall than in previous years, we managed to keep the impact on the participating institutions and authors manageable. Surprisingly, we also received mostly constructive and understanding feedback - which of course makes us happy.

How has this incident affected the use of EconStor?

OS: Despite the challenges, we were able to ensure that the use of EconStor could continue as usual after the five-week downtime. At the end of 2023, we had similar access figures to those at the end of 2022. Our top priority was to secure the data and publications and to enable our cooperating institutions and authors to publish their publications again as quickly as possible. In fact, despite the cyberattack, there were over 14,000 new uploads in 2023, which shows that the scientific community continues to have confidence in EconStor.

Thank you, Olaf Siegert, for these insights into the consequences of the cyber attack on EconStor.

The EconStor repository is an open access repository for economics publications that is one of the largest of its kind in the world. It maintains co-operations with over 700 institutions worldwide that distribute their publications via EconStor, with around 50% of these institutions coming from abroad. EconStor also offers a self-upload option for individual authors, which is actively used by over 1000 researchers.

The repository currently houses around 260,000 full texts in economics, including working papers, journal articles, conference papers, edited volumes and books. It acts as a central repository for economics publications in the context of the open access transformation, which also includes DEAL contracts, ZBW-negotiated transformation contracts and the provision of individual journals in open access. EconStor is also an important input service for RePEc.

REPOD: The new digital repository for scientific policy and social counselling under construction

Scientific policy and social advice has become increasingly important in recent years and has also become more and more differentiated. On the one hand, there are the institutionalised expert committees of the Federal Government, such as the Council of Experts or the Bioeconomy Council. On the other hand, there are the departmental research institutions, which are located within the remit of individual ministries and provide science-based advice. The Robert Koch Institute has become particularly well known during the coronavirus pandemic. Then there are the scientific academies, universities and non-university research institutions, as well as the plethora of think tanks, foundations and private political consultancies that also claim to provide science-based political and social advice.

Policy papers, expert reports and studies are key instruments of these players. However, if you want to read these texts, you have to work your way through the websites of the various organisations, which must be known by name beforehand. They are currently not specifically searchable.

This is now set to change with the establishment of the "Repository for Policy Documents" (REPOD), which was launched in 2023. REPOD was funded by the Federal Ministry of Education and Research (BMBF) until the beginning of 2024. By the end of the year, the pilot for a digital infrastructure facility was established, which records a wide variety of scientific advisory documents across disciplines and makes them searchable for both decision-makers and the interested public. In order to optimise this transfer of knowledge from research to politics, administration and society, the creation processes, quality criteria and conditions of use of advisory documents were scientifically investigated. The results of the accompanying research and the REPOD prototype were presented at a final symposium in Berlin on 20 January 2024. The ZBW was responsible for project management in REPOD and set up a digital, cloud-based and sustainable information

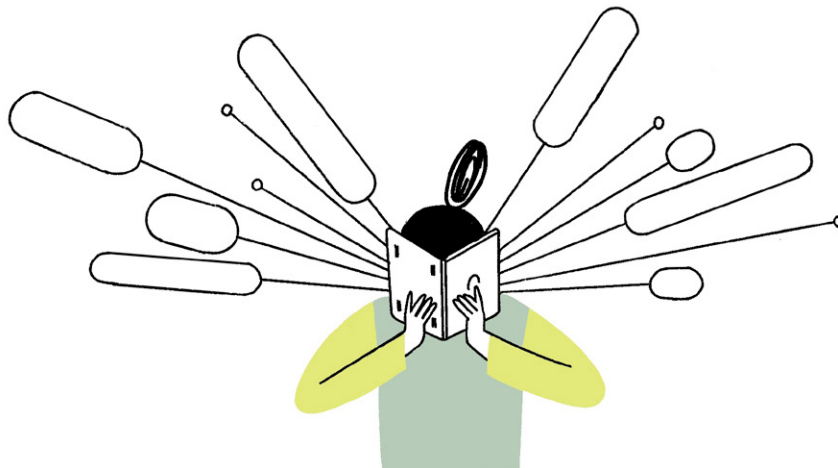
infrastructure for this purpose. In addition to the ZBW, the research consortium consisted of scientists from the Alexander von Humboldt Institute for Internet and Society (HIIG), the Leibniz Institute for Media Research | Hans Bredow Institute (HBI), the Leibniz Institute for Research on Society and Space (IRS), the RWI - Leibniz Institute for Economic Research and the Leibniz Association as an associated partner.

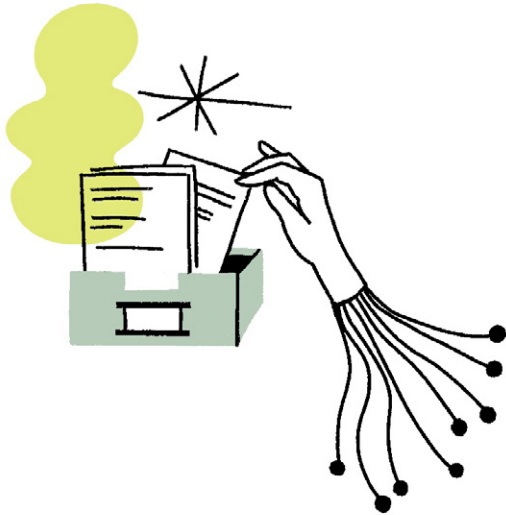
Beyond keywords: How information seeking in digital libraries can be transformed

The efficiency of information searches in digital libraries and search portals is undergoing a revolutionary change thanks to the use of artificial intelligence (AI). Until now, the success of a search depended largely on the precise selection of search terms - an often tedious and error-prone task. Thanks to significant advances in natural language processing (NLP), it is now theoretically possible to formulate search queries in everyday language. This technological development eliminates the need to painstakingly identify exact keywords. Instead, the digital library (DL) can now recognise the intention behind the questions asked and guide users to the desired information in a targeted manner. This innovation has the potential to transform digital libraries from static databases into interactive research partners that are able to respond to the individual requests of their users.

Experiment shows: Machine learning potentially improves search functions in digital libraries

In this context, Dr Arben Hajra from the ZBW has conducted an experiment that demonstrates the use of machine learning (ML) in a specialist portal such as EconBiz to optimise the search experience. Using deep learning techniques, he has created word embeddings that make it possible to capture the finer nuances of language. This technique "understands" how words are related in context, going beyond mere dictionary definitions. Although controlled vocabularies or thesauri offer similar functionality, word embeddings enable comprehensive





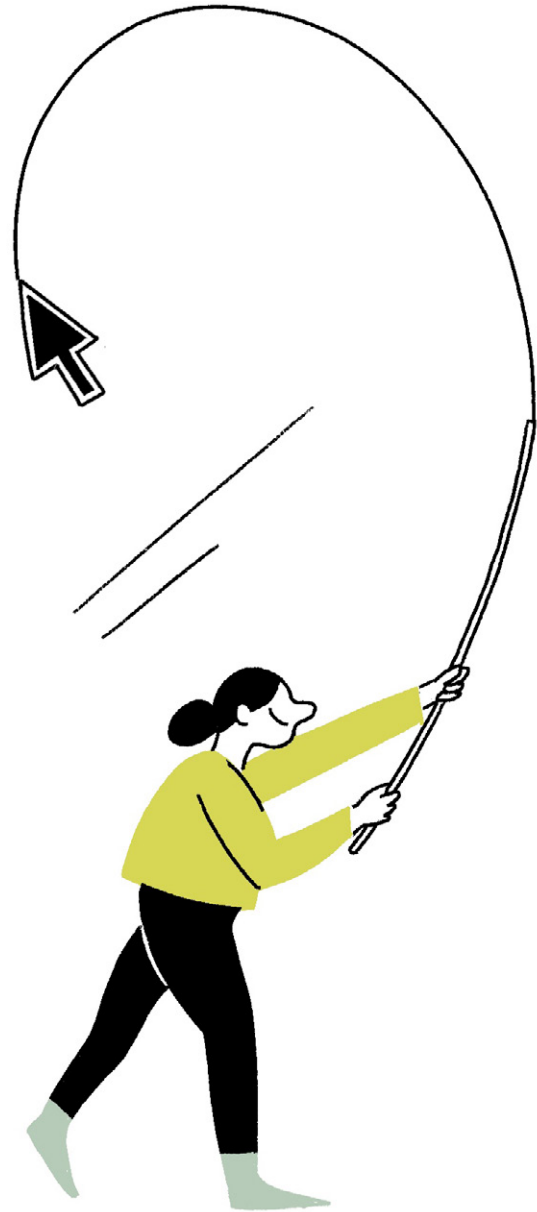
recognition of relationships between terms that are not predetermined but derived from the training context. For example, when searching for specific topics such as "inflation rate", users can unexpectedly find relevant information on related topics such as "GDP" or "volatility", even if these terms are not explicitly mentioned in the search.

ZBW trains word embedding models for more precise searches in business publications

For this study, the ZBW trained various word embedding models. A corpus consisting of publications indexed in the EconBiz subject portal was used for training. The training was based on titles and abstracts containing more than 1.2 million different words. The models, which were trained with economics publications, reflect relationships between terms in this specific field. The performance of the models depends not only on the content and size of the corpus, but also on the setting of specific hyperparameters.

The use of these developed models potentially improves the user experience in subject portals in many ways, for example through optimised search results and personalised recommendations. The ZBW's experiments aim to provide different interfaces for information search and retrieval based on machine-learning-supported word embedding models. This allows the intention behind the search query to be recognised - even for differently formulated searches. A search for "energy" could also return results for "electricity", "fuel", "solar" or "water". By automatically including related terms or manually selecting from suggestion lists, the search can be made more intuitive and appealing.

This approach illustrates the added value of machine learning in the digital library ecosystem. The use of AI as a research assistant enables a more efficient information retrieval process in the future.



“IN THE LIBRARY ECOSYSTEM,

*AI brings enormous opportunities
but is also coupled with concerns.
The challenge remains: how to
harness its potential while navigat-
ing the complexities.”*

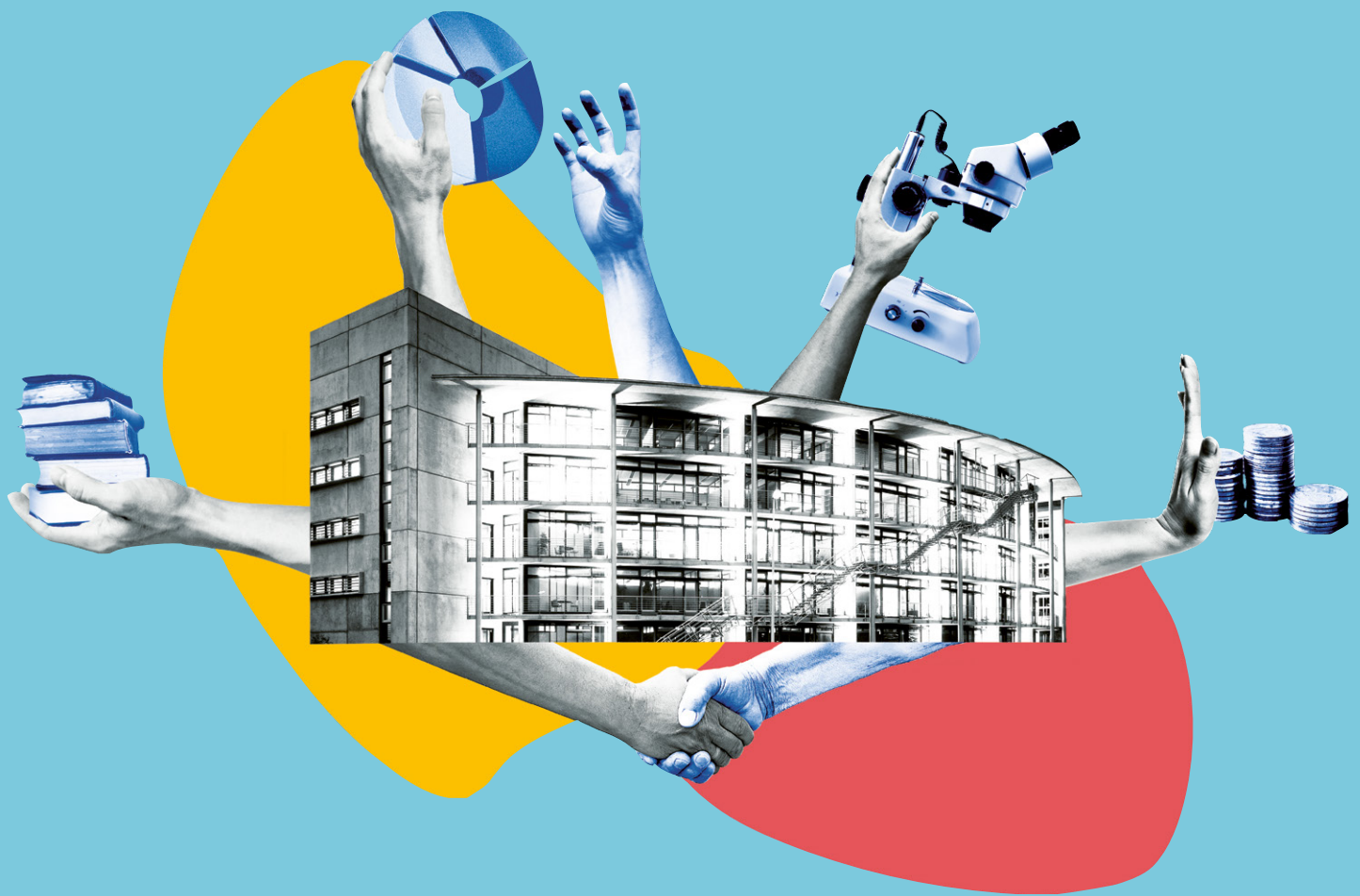
DR ARBEN HAJRA

Senior Scientist in the program area Open Economics



Access to knowledge expanded

*ZBW concludes Open Access agreement
with Taylor & Francis for German research
institutions*



The ZBW - Leibniz Information Centre for Economics has entered into a partnership with the scientific publisher Taylor & Francis, which is of great importance for German research institutions. This Open Access agreement represents a significant step forward in the scientific publishing landscape. It enables business researchers in Germany to publish their work in more than 2,000 journals without paying additional fees. The agreement also ensures that authors retain their copyrights, which is a significant improvement over traditional publication models.

Advantages for scientists:

- 1. Cost efficiency:** Researchers benefit from the opportunity to publish their results without additional publication charges (APCs). This facilitates access to scientific publications and promotes the dissemination of new findings.
- 2. Broad visibility:** The agreement with Taylor & Francis significantly expands open access publishing opportunities for researchers in Germany, particularly in the economic and social sciences.
- 3. Promotion of the scientific community:** Open Access publication makes research results available to the scientific community and the public without access restrictions. This promotes scientific discourse and supports the formation of research networks.
- 4. Sustainability:** The long-term archiving of research results is ensured, which enables continued access to scientific findings for future generations of researchers.

This Open Access agreement with Taylor & Francis marks a significant step towards a more open and accessible scientific exchange that strengthens the research community as a whole and promotes the dissemination of knowledge.

Three-year framework agreement as a result of the negotiations

On the initiative and under the lead-

ership of the ZBW, a negotiating group of consortium-leading institutions explored possibilities and business models with Taylor&Francis. In the end, a framework agreement was concluded for three years for German scientific institutions, which, in addition to the existing access to scientific journals, opens up the possibility for researchers to publish in the more than 2,000 Taylor & Francis journals in open access and with retention of rights at no additional cost.

Taylor&Francis is the fourth-largest publisher in the German publishing market

Taylor & Francis is one of the largest internationally active scientific publishers. After the three dominant publishing groups Elsevier, Springer Nature and Springer, Taylor & Francis ranks fourth in the German publishing market. The agreement thus closes a not insignificant gap in the academic publishing landscape and enables German researchers in the humanities and social sciences in particular to utilise the advantages of Open Access.

Intensive networking with the library community

The negotiating team, consisting of employees from leading consortium institutions such as the Staatsbibliothek zu Berlin, the Max Planck Digital Library and the Baden-Württemberg Consortium, was led by Jens Lazarus, who is responsible for collection and licence management at the ZBW. Collaboration and dialogue with representatives from university and college libraries and research institutions was intensively promoted via a specially established focus group. Structured communication made it possible to effectively incorporate direct feedback and questions from the academic community into the negotiations with Taylor & Francis.

Consortium

Following the successful negotiations, the ZBW will also assume leadership of the consortium, the organisational framework for the concluded agreement. For 2023, 140 scientific

institutions are participating in the consortium, including 46 Leibniz Institutes. Over 1,600 scientific articles from these institutions can be published in open access under the agreement. Around 5 per cent of all scientific publications from German scientific institutions are published in Taylor&Francis journals - from 2024, a significant proportion of these will now be open access.

Jens Lazarus, Head of Negotiations for the ZBW:

"This three-year 'Read & Publish' agreement with Taylor & Francis marks an important milestone in the open access transformation in Germany. With the opportunity to publish in over 2,000 renowned journals, we offer our researchers the platform they need for international discourse. As a negotiating team, we are proud that this agreement will significantly expand the reach and influence of German research."

Thorsten Meyer, Library Director of the ZBW:

"The successful conclusion of this agreement shows how crucial good negotiations and long-term cooperation are for the promotion of science. Through this Germany-wide consortium, we are not only creating access to important scientific resources, but also enabling German research to become even more visible and accessible internationally." ■

Understanding *the use of information and knowledge*



Research into user behaviour in the digital information world

The “Web Science” research area, headed by Professor Dr Isabella Peters, investigates user behaviour in digital environments and the interactions between science, media and digital technologies. It covers a wide range of topics, from investigating digital platforms or alternative metrics and social media to analysing the dissemination and perception of scientific findings. The aim is to understand the dynamics of the digital information landscape and to improve the quality of science communication.



We asked Professor Dr Isabella Peters about the key findings.

Why is the relationship between science and the media so relevant today?

Isabella Peters: The relationship between science and the media is of great importance in today’s world, as scientific knowledge plays an increasingly important role in tackling complex challenges. The way in which scientific research findings are communicated to the public, particularly through journalism, has far-reaching implications. Media coverage of research findings can influence scientific discourse

and also have an impact on the internal processes of science itself. It is therefore crucial to better understand the interactions and relationships between science and the media.

Your anthology examines the interface between internal and external science communication. Could you explain this interface in more detail and why it is particularly relevant today?

Isabella Peters: Of course. The interface between internal and external science communication deals with the overlaps and interactions between practices within the scientific community for the production and dissemination of scientific knowledge (internal science communication) and communication between science and society (external science communication). In today’s digital world, the traditional boundaries between these two forms of science communication are becoming increasingly blurred. This is particularly relevant as the digitalisation of media communication technologies, the disclosure of scientific work processes through open science and events such as the Covid-19 pandemic have fundamentally changed the dissemination of scientific knowledge. The traditional distinction between internal and external communication is no longer so clearly defined, and this has far-reaching implications for the way science is perceived and communicated.

What role do the various actors play at this interface, such as the researchers themselves, professional science communicators and science journalists?

Isabella Peters: The various parties involved at this interface play a crucial role in shaping and disseminating scientific findings. The researchers themselves are, of course, the producers of these findings and are responsible for how they are communicated. Professional science communicators have the task of preparing and conveying scientific information in such a way that it is understandable to the general public. Science journalists, on the other hand, play a central role in translating and communicating scientific content to the mass media and the public. They choose which studies to cover and how to report on them. Platforms and dissemination organ-

From this broad spectrum of research topics, two key areas are presented in detail below: **The role of digital technologies and social media in science communication and the use of game elements in non-game contexts, so-called gamification, in the use of learning environments and intelligent virtual assistants such as Alexa or Siri. These two topics illustrate the central concerns and commitment of the web science research team in the current scientific debate.**

The intertwining of science and media

The interface between science and the media is a dynamic field of research. Web science contributes to improving the quality of science communication and exploring the relationships between science, media and digital technologies. An anthology entitled “The Science-Media Interface: On the Relation Between Internal and External Science Communication”, published in open access in 2023, is dedicated to this topic. This anthology was edited by researchers from the BMBF project “MeWiKo - Media and Scientific Communication” under the direction of Professor Dr Isabella Peters, Dr Athanasios Mazarakis and Dr Steffen Lemke from the ZBW - Leibniz Information Centre for Economics and contains contributions from experts in the fields of scientometrics, quantitative science research, communication science and journalism research.

isations are also important actors, as they curate scientific research for dissemination in the mass media. The interaction between these actors has a significant influence on how scientific findings are perceived and interpreted.

To what extent does the public communication of research results, especially the journalistic presentation, have an impact on the scientific discourse?

Isabella Peters: The public communication of research results, especially the way they are presented in journalism, can have a significant impact on scientific discourse. Studies and research findings that are widely discussed in the media often receive more attention and citations within the scientific community. This can lead to certain topics or research findings having a greater impact on the scientific agenda.

However, the journalistic presentation of research results can also lead to simplifications and decontextualisation, as complex scientific findings often have to be presented in a condensed manner. This can lead to misunderstandings or misinterpretations and poses a challenge for the communication of scientific findings.

What recommendations do you have for researchers to promote effective collaboration with the media?

Isabella Peters: Effective collaboration between researchers and the media requires a better understanding of their respective needs and goals. Researchers can learn from journalists what interests them and how they should best present scientific information. It can be helpful to engage with media representatives and ask questions to better understand their needs and expectations. It is also important to be transparent and communicate clearly what role researchers should play in reporting. Sometimes they are merely experts who provide sound bites, while journalists write the articles. These roles should be clarified from the beginning to avoid misunderstandings. Cooperation and collaboration between researchers and the media are crucial to effectively communicate scientific findings and to optimise the interface between science and the media.

Thank you very much!

To the publication:

Broer, I., Lemke, S., Mazarakis, A., Peters, I., & Zinke-Wehlmann, C. (Eds.). (2023). *The Science-Media Interface: On the Relation Between Internal and External Science Communication*. Walter de Gruyter GmbH & Co KG. <https://doi.org/10.1515/9783110776546>

*You can find a comprehensive interview with Prof Dr Isabella Peters on the topic on [wissenschaftskommunikation.de](https://www.wissenschaftskommunikation.de) here: <https://zbw.to/FxPSY>

THE SEARCH FOR KNOWLEDGE

Effective discoverability of research results with AI tools

The "Information Profiling and Retrieval" research area headed by Professor Dr Ralf Krestel focuses on optimising the findability and accessibility of research-relevant information, such as scientific publications. With the help of artificial intelligence methods, information is processed, analysed and presented in a form that is easy for users to understand.

Using innovative methods and techniques, this research area aims to improve the information landscape and make relevant content more accessible. Two specific research results are presented below that make the findings of this research area particularly easy to understand.

AI language model DistilBERT leads the way in automatic keyword extraction

Use of AI in specialised terminology: The ZBW is investigating automated methods for updating the standard thesaurus for economics

The ZBW, known worldwide for its extensive Standard Thesaurus for Economics (STW) with 6,000 keywords and over 20,000 alternative search entries in German and English, is now researching the use of AI technologies to automatically extract keywords from scientific publications and thus update the thesaurus.

Under the leadership of Dr Ralf Krestel, Professor of Information Retrieval and Profiling, a research team at the ZBW

2023 has developed and tested a method that automatically extracts important technical terms from scientific articles, in particular from titles and abstracts. The team used pre-trained BERT language models and compared their performance with conventional methods such as TFIDF, TextRank and KeyBERT.

The study shows that the BERT model DistilBERT is the most effective overall in keyword extraction. Not only was it able to accurately identify specific keywords from economics, but it also suggested more potential new terms for the standard economics thesaurus than competing methods.

The data basis was a data set from the ZBW, which originates from the ECONIS database. Titles, abstracts and selected metadata, but no full texts, were extracted from scientific publications. The metadata includes the year of publication and language of the works. In addition, existing keywords of various kinds were added. For example, keywords that were freely chosen by the authors, as well as existing standardised keywords. The analysis was limited to publications between 2009 and 2021 and resulted in a data set of 575,000 entries.

The Standard Thesaurus for Economics is the most comprehensive bilingual specialised vocabulary for recording and searching economic topics and offers extensive coverage not only of economics but also of related subject areas. Various organisations, academic

libraries and research institutes, including the German Institute for Economic Research, use the Standard Thesaurus for Economics for their thematic indexing and specialised research. The ZBW is responsible for maintaining and updating this valuable pool of resources and has the world's largest collection of economic literature.

To the publication:

The full study, "Domain-Specific Keyword Extraction using BERT" by Jill Sammet and Ralf Krestel, has been published in the TermTrends workshop at LDK 2023 and is available online. <http://hdl.handle.net/11108/586>

Fast-forward knowledge search

Research team from ZBW and Hasso Plattner Institute Potsdam develops a model for fast information processing with DECENT

In a world where people are confronted with an unmanageable sea of texts every day, we are faced with a huge problem: how can we find the relevant information we are looking for quickly and precisely?

In a paper published in 2023, scientists from the ZBW and the Hasso Plattner Institute (HPI) present their DECENT model. This model identifies mentions of entities in texts, such as people, places or organisations, and classifies these entities into very



The "Information Profiling and Retrieval" research area, led by Professor Dr Ralf Krestel, focuses on the optimal retrieval and accessibility of research-relevant information, such as scientific publications.

fine-grained classes. Compared to conventional methods, which only make a very rough distinction between people, organisations and places, newer methods can classify at a much finer granularity.

For example, the model not only recognises that Olaf Scholz is a person, but also that he is a politician - and not an athlete, artist or scientist. These fine-grained models sometimes go even further and differentiate between tennis players, basketball players or track and field athletes in the "athletes" category, for example. This makes it possible to search for specific groups of people in a search engine, for example.

Compared to conventional methods, ultra-fine classification offers a far greater variety of potential classes, which can number in the tens of thousands. This naturally increases the effort required for recognition and classification considerably. This is where DECENT comes in: the model uses machine learning and learns from data in which the occurring entities

were previously labelled manually by humans. Thanks to the skilful processing of this data, it is significantly more efficient than existing models.

"Compared to previous approaches, DECENT is up to 130 times faster at training and recognising the model under the same conditions, without sacrificing classification accuracy," explains lead researcher Prof. Dr Ralf Krestel. "DECENT can speed up training by cleverly encoding the input and entity classes and improve generalisation to previously unseen classes. In addition, it opens up the possibility of handling entity classes in specialised domains and with different definitions, which could further improve the quality of results in different application areas in the future." ■

To the publication:

The complete research paper "Efficient Ultrafine Typing of Named Entities" by Alejandro Sierra-Múnera (HPI), Jan Westphal (HPI) and Ralf Krestel (ZBW) can be found at the following URL: [DOI: 10.1109/JCDL57899.2023.00038](https://doi.org/10.1109/JCDL57899.2023.00038). It was presented at the renowned international Joint Conference on Digital Libraries (JCDL), which was held under the motto: "Exploring new perspectives, challenges, and opportunities for libraries, archives, museums, and galleries". The JCDL deals with various aspects of digital libraries, from infrastructure to digital preservation.



ON THE USE OF AI TOOLS IN ECONOMICS TEACHING

*A practical report by Mark Spektor from the
"Digital Economy" research area*



In today's digital world, where data and information are available on an unprecedented scale, the application of AI tools plays a crucial role in economics. These tools not only enable the efficient processing of large amounts of data, but also open up new horizons for analysing complex economic relationships.

The use of AI tools in economics teaching is of crucial importance for several reasons:

The economy is in the midst of a digital transformation in which data has become a central element for decision-making and policy-making. Students need to develop the ability to use and interpret this data effectively. In addition, AI tools make it possible to carry out complex analyses in the shortest possible time and deliver heuristic results. This is invaluable in economics, as precise data and fast analyses enable sound policy advice and evidence-based decision-making.

The use of AI tools also opens up new opportunities for innovative research in economics. They can help to identify previously undiscovered patterns and trends in the data and thus lead to new insights and fields of research. Last but not least, these AI skills also have professional relevance, as graduates who are familiar with these technologies are better prepared for the demands of the labour market and can offer added value in various industries.

With this in mind, the research team from the "Digital Economics" department, led by Prof Dr Marianne Saam, has launched an innovative pilot project to explore the use

About the person:

Mark Spektor is a research assistant at the University of Hamburg in the research area "Digital Economics" under the direction of Prof Dr Marianne Saam. He successfully completed his Master of Science in Economics at the same university in 2022. Prior to that, he spent the year 2021 to 2022 as part of a year abroad at Saint Petersburg State University.

Mark Spektor completed his Bachelor of Science in International Business Administration at the Vienna University of Economics and Business in 2016. During his studies, he spent a semester abroad at the Marshall School of Business at the University of Southern California in 2015.

of state-of-the-art AI technologies in university teaching. We spoke to the lecturer of the first course project, Mark Spektor.

Could you tell us how the course was structured and what the students could expect?

MS: Of course. The course started with an introduction to the application of economics in policy advice and the open science approach. This introduction created a solid foundation for understanding the topic. We introduced various AI tools such as ChatGPT, ChatDOC, Bard and New Bing right at the beginning and then invited students to use them as tools to solve complex economic policy questions throughout the course. This also included an in-depth analysis of the scientific methodology and underlying technologies of the AI tools used.

How were students supported during the course and how was their learning experience enhanced?

MS: The students were instructed to systematically document and critically reflect on their interactions with the various AI tools. Many tasks could also be worked on in teams, with selected results and reflections being shared with the entire course. The main challenge for the students was to organise the documentation in a meaningful way. Simply copying the processes was not very effective; instead, meta-notes proved to be useful. Initially, the students used the tools with a certain degree of freedom and on the basis of my own experience. Through trial and error, they independently recognised their limits and possibilities. In each lesson, I sought to talk to each student personally to enquire about current difficulties and offer support and advice. This promoted in-depth understanding and active participation. In addition, peer feedback mechanisms were integrated into the course to promote social skills and collective learning.

What experiences have you had with this peer-to-peer feedback?

MS: Our experience with the peer-to-peer feedback was consistently positive. Learning from the experiences of others proved to be extremely effective. Particularly in the final presentations, we found that students described similar challenges in comparable ways. This indicates that, objectively speaking, there are specific areas where the use of the tools is more or less appropriate. Of course, on the other hand, I can also find the benefits for myself in presentation design by generating very individual prompts that are customised to my needs. I think that explicit, targeted communication can be very helpful here.

What was the main aim of this course?

MS: The main objective was to introduce students to scientific work and to promote their digital skills and critical thinking. They were enabled to act as economic policy advisors and

answer economic policy questions using ChatGPT and other AI tools. Through the practical application of cutting-edge technologies and immersion in scientific methods, students acquired valuable skills for their academic and professional development.

Can you start by telling us how your students reacted to this pilot course?

MS: Overall, the course evaluation was very positive, and the integration of AI tools in particular met with great approval among students. Specifically, 56 per cent of students described the integration of AI tools as "very good" and a further 36 per cent rated it as "good".

That's interesting. What did the students find particularly helpful about the use of AI tools in the course?

MS: The students particularly emphasised the benefits of getting to know a variety of AI tools and learning how to use them effectively for their scientific work. The direct application of the tools in practice was also highly appreciated, as it enabled students to gain immediate practical experience. The opportunity to experiment with a wide range of AI tools was particularly appreciated. Some students expressed a desire for "ready-made, effective prompts", a need that is also evident in other contexts such as the search for solutions for sample exams or ideal term papers.

Did the students already have experience with AI tools in an educational context before this course?

MS: Around a third of the students had previous experience with AI tools in an educational context, while most of the others had no previous experience. In the free text responses in the course feedback, students emphasised that this course had given them a broader knowledge of the use of various AI tools and that they were now more familiar with the advantages and disadvantages of AI in general.

How has the students' understanding and ability to use AI tools developed as a result of this course?

MS: The course feedback shows that half of the students were positive about the improvement in their understanding and skills in using AI tools. Impressively, 36 per cent even rated this improvement as "very good". It was equally fascinating for me to observe how the students independently scrutinised the limitations of these tools. For example, they found the tools very useful for generating ideas or getting started in complex subject areas. When creating presentations or researching literature, however, the AI tools were often perceived as less effective, as literature research can often be carried out independently in a more time-efficient manner. Nevertheless, there were exceptions, such as finding important researchers in a particular subject area. Interestingly, some students told me that they were originally very reluctant to use AI tools and would

probably not have taken the step to try them out so quickly without this course. These students were particularly grateful for the experience.

How has the ability of students to understand challenging texts with AI tools developed?

MS: The students stated that they understood demanding texts better with AI tools. On a scale of 1 to 5, 18 per cent gave a rating of 3, half gave a rating of 4 and 32 per cent gave a rating of 5, which indicates a significant improvement. However, I would like to emphasise that independent reading is still absolutely essential for a deeper understanding.

Finally, how do you feel about the fact that the majority of students see AI tools as support at the university and consider them useful in a university context?

MS: I find it extremely encouraging to see that 59 per cent of students see AI tools as a support at university and even 73 per cent consider them useful in a university context. These figures show that students recognise and appreciate the potential of AI tools for their academic development.

Thank you for the insights, that sounds like an extremely relevant and exciting course.

Diversity and equality at the ZBW

Background report: A journey towards an inclusive organisational culture



In an era of globalisation, demographic change and digital transformation, the ZBW faces the challenge of adapting and developing its organisational structures. However, it is actively striving to create a culture that not only tolerates diversity, but actively promotes and protects it.

The ZBW views diversity as an important source of strength and innovation. As a learning organisation, it strives for an appreciative, equal and non-discriminatory culture. From 2022 to 2023, the ZBW was the first non-university research institution to undergo a comprehensive diversity audit by the Stifterverband, which is the focus of this background report.

Participatory process to promote diversity and inclusion at the ZBW

Insight into the path to cultural change and diversity at the ZBW

A diversity audit "Shaping diversity" is an evaluation process that aims to assess diversity and inclusion within an organisation. Existing structures, processes, policies and practices are analysed in terms of their effectiveness in promoting diversity and equal opportunities. The audit identifies strengths, weaknesses and potential for improvement and offers recommendations for the (further) development of a suitable diversity strategy and the implementation of measures to create a diverse and inclusive working environment.

A participatory process was chosen for the audit at the ZBW. In addition to the data from the 2022 status quo survey, it was important to learn firsthand about the key issues and potentially hidden aspects and needs of the ZBW through employee participation. The kick-off event with themed tables and contributions from employees on various diversity dimensions and fields of action, as well as the workshops on strategic and operational planning of objectives and measures, helped to concretise and expand the

planned development objectives. The participation process has shown that it is not only about the existing diversity of employees and their potential, but also about structural barriers, the critical analysis of categories of difference, the recognition of unconscious prejudices and self-reflection on one's own perception of privileges and mechanisms of exclusion.

Another focus was on creating spaces for exchange in which similarities and differences, needs and wishes were discussed so that the process was not just "ticked off" but successful. In principle, the ZBW endeavours to adopt an inter-sectional perspective that takes into account the synergies and interactions of the various aspects of diversity.

Strategies for diversity and inclusion: the implementation of the diversity audit at the ZBW

A look at the coordinated steps to promote a diverse and inclusive organisational culture

The audit steering group, consisting of the Directorate, in particular the ZBW Library Director Thorsten Meyer, the Equal Opportunities and Diversity Officer Ulrike Ellendt as project manager and the "Values Process" team, led the process. The dovetailing of the cross-cutting issues in ZBW-WORLD ensured long-term and networked cooperation, whereby diversity was continuously taken into account. Regular dialogue between the steering group and the auditor Karoline Spelsberg-Papazoglou made it possible to adapt the process to the needs of the ZBW. The audit steering committee supported the process and provided information on the implementation steps at regular meetings. The virtual diversity audit update contributed to transparent communication and dialogue with employees. The objectives and measures were implemented by seven flexibly adapted working groups, for example on gender identities, life-phase orientation, intercultural and international issues, anti-discrimination, the values process and the digital transformation working group on equal opportunities.

The visibility of the first measures developed in the working groups also quickly supported the acceptance of the topics and the integration of the aspects into everyday working life. One example of this is the meeting of a 'Queer& Friends@ZBW' group, which was initiated by the Gender Identities working group.

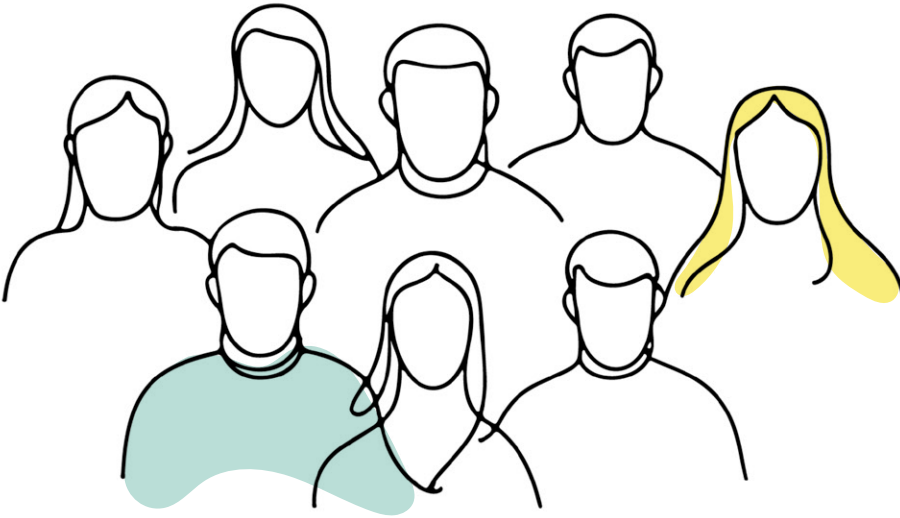
Diversity has become part of the ZBW-WORLD initiative (W=Werte, O=Organisationsentwicklung, R=Räume, L=Leibniz, D=Diversity) in order to exploit synergy effects and further strengthen the cross-sectional aspect. Work results from the exchange and communication group also flowed directly into the R=Spaces subgroup. Many overlaps with the W=Values and Culture process are regularly synchronised within the WORLD coordination group.

Reflection on the diversity review process

Findings and lessons learnt from the evaluation and participation

When reflecting on the audit process, it becomes clear that it provided a valuable framework for evaluating the current status, optimising existing measures and further developing the structures of the ZBW in a targeted manner. The external audit was not viewed in isolation, but was seen as an integral part of a continuous organisational development process. A clear top-down initiative from the management level was just as important as bottom-up participation from employees.

The diverse experiences and perspectives of the workforce during this process proved to be extremely valuable. The high participation rate of 90 employees at the kick-off event and an average of 25 per cent of all employees at the other workshops and information formats is evidence of strong commitment. Although the reflection workshop had a lower turnout due to the cyberattack, it was still a success.



What have we learnt from this?

- Organisations and their cultures are diverse. It is crucial to identify the appropriate methods and tools to address our employees and actively shape the change towards a diversity-friendly, appreciative and non-discriminatory organisation.
- Effective diversity management is based on respect. Developing an organisational culture based on mutual respect and consideration is crucial to promoting diversity and preventing discrimination. The values process forms an important framework for this.
- Employee participation is essential for the success of auditing processes and diversity initiatives. Their active participation, creativity and openness have provided valuable impetus and are still needed.
- It is a challenge to reach all employees, especially those who are less visible or need convincing. A decentralised communication strategy and increased involvement of managers at all levels are therefore of great importance.
- It is important to address underrepresented groups without stereotyping and to understand their needs. Safe spaces and various sensitisation formats are important here.
- An ongoing presence and visibility of the topic as well as sufficient resources are essential for the sustainable implementation of diversity measures.

Overall, it can be seen that sensitivity to diversity is increasing at the ZBW and that open communication on diversity issues is being facilitated. This requires an ongoing dialogue, openness to different perspectives and respectful interaction with one another.

The very open and trusting approach to the sometimes very personal diversity issues and the very constructive, open and also critical dialogue with the employees had a variety of effects. They have encouraged and sensitised employees and triggered intensive self-reflection processes. The ZBW is very optimistic that it will be able to maintain this valuable, open process and learning from each other, as well as all the other positive effects on its organisational culture described above, in the long term and beyond the auditing process.

The second self-report marked the final milestone in the auditing process and the Stifterverband confirmed the ZBW's certification at the end of 2023. The "Shaping Diversity" certificate, which will be awarded to the ZBW for the next five years, will be presented by the Stifterverband on 6 March 2024. ■

"AI TEACHES US

*that fast information is not
always synonymous with
accurate and quality infor-
mation."*

STEFFEN SCHAWÉ

*Librarian in the program area User
Services & Conservation*



ZBW helps shape the Open Science movement in Europe

Involvement and successes in national and European science policy bodies 2023

ZBW at the heart of the Open Science movement

The ZBW - Leibniz Information Centre for Economics is intensively involved in the science policy landscape, particularly in areas relating to Open Science at national, European and international level.

Through its active participation in leading advisory bodies, the ZBW makes a decisive contribution to the promotion and further development of open science practices. This commitment is reflected in the ongoing work of its employees, who contribute their expertise to various German and European committees.



At national level, these include the Alliance of German Science Organisations, decision-making bodies of the National Research Data Infrastructure (NFDI) and advisory bodies of the federal and state science ministries and the Federal Ministry of Economics.

At European Commission level, this includes, for example, expert groups or partnerships that have been established between scientific institutions and the European Commission. For example, the ZBW is involved in the European Open Science Cloud Association or - as a representative for Germany - in the context of CoNOSC, the Council for National Open Science Coordination. Internationally, the focus is on supra-national working groups and committees. Thanks to these diverse activities, the ZBW has established itself as a competent partner in recent years.

Dr Anna Maria Höfler's participation in the "UNESCO Working Group on Open Science Policies and Policy Instruments" should be emphasised internationally. This collaboration enables the ZBW to contribute directly to the implementation of the UNESCO Recommendation on Open Science. To date, "Guiding Principles for Developing Policies for Open Science" have been developed, which form part of the UNESCO Open Science Toolkit. This commitment, which will continue in 2024, emphasises the proactive role of the ZBW in the international arena.

The ZBW uses these platforms not only to actively shape national and European science policy, but also to ensure the connectivity of national activities, for example in the context of the NFDI, with European initiatives such as the European Open Science Cloud (EOSC). The discussions held in these committees also enrich the internal work of the ZBW.

Milestone 2023: Prof Dr Klaus Tochtermann's re-election to the Board of the EOSC Association

A key moment in 2023 was the re-election of Prof Dr Klaus Tochtermann, Director of the ZBW, to the Board of Directors of the European Open Science

Cloud Association (EOSC Association). As a legal entity, the EOSC Association unites around 250 research institutions from all over Europe and plays a central role in shaping the research data infrastructure in Europe. Klaus Tochtermann's re-election with an impressive 100 per cent approval rating underlines the broad recognition of his contributions to the Open Science movement. His commitment to the open science movement, particularly in the area of research data management, has made him a key player at both national and international level.

The position on the Board of Directors enables Klaus Tochtermann to play a creative role in the calls for proposals in European Commission funding programmes and in the development of the European Open Science Cloud (EOSC) after 2027. The EOSC is a European initiative that aims to federate and network existing infrastructures for research data management so that researchers can share and use data across disciplinary boundaries. The vision of the EOSC is to create a trusted network of FAIR data and related services for research.

Klaus Tochtermann acts as a link between the Board of Directors of the EOSC Association and the German members of the EOSC Association in the EOSC Roundtable, which is organised by the NFDI Association. This emphasises the central role that the Director of the ZBW plays in shaping the framework conditions for open science in Europe. The ZBW, represented by Tochtermann and coordinated by Science Policy Coordinator Dr Anna Maria Höfler, is thus demonstrating its ongoing efforts to strengthen the scientific community through access to research data and infrastructures.

ZBW in favour of Open Science: from national legislation to international policy-making

Through the LeibnizData research network, which the ZBW has coordinated since it was founded, the ZBW played a leading role in the public consultation on the Research Data Act. A position paper was submitted on behalf of the

Leibniz Association, which addressed the needs, challenges and proposed solutions in the context of research data, research data management and infrastructures. The ZBW thus demonstrated its strong commitment to creating a framework that supports the handling of research data in accordance with the relevant guidelines and papers of the Leibniz Association and the ZBW.

Continuing its commitment to Open Science, the ZBW organised two Open Science Retreats in 2023. Last year, the topic "Reform on Research Assessment in the context of Open Science" was on the agenda on 21 and 22 March. This event aimed to intensify the discussion on the relevance of reforming research assessment in the context of open science. By publishing a guest article by the ZBW in the science policy "Wiarda Blog", which summarised the most important discussions and results of the retreat, the ZBW made a significant contribution to the continuation of the debate.

At the Open Science Retreat #6 on 14 and 15 November 2023, the focus was on the agility of commercial infrastructures compared to the inertia of institutional infrastructures. Challenges and opportunities for fruitful and trustworthy collaboration were discussed. Natalia Manola, CEO of OpenAIRE, shed light on the role of public-private partnerships in open scientific infrastructure. Julia Lane, Professor at NYU Wagner Graduate School of Public Service, gave important input on fostering collaboration, sharing work and the role of open science.

These retreats provided an important platform for exchanging ideas and deepening understanding of the challenges and opportunities in the field of open science and research assessment.

Open educational resources in economic research

New section on Open Educational Resources introduced in the Open Economics Guide

In recent years, Open Educational Resources have established themselves as a key factor in the economic sciences, democratising access to scientific materials and educational resources. Open Educational Resources, defined as educational materials published under an open licence, allow resources to be used, edited and redistributed free of charge. This concept is becoming increasingly important, particularly in light of the high costs of specialist literature and textbooks, which are particularly prevalent in the US. In 2023, the topic of OER was therefore included in the ZBW's Open Economics Guide.

The role of open educational resources in economic research

Open Educational Resources (OER) have become increasingly important in recent years, partly due to the high cost of textbooks, especially in the USA. In many subject areas, there is now a large number of freely available teaching and learning materials on the internet. OER are independent of type and medium and can include individual materials as well as complete courses or books. Other examples include syllabuses, course materials and exercises, wikis, videos, multimedia applications and podcasts. MOOCs (Massive Open Online Courses) from universities and other educational institutions are also included, provided they are offered under an open licence. OER are a building block for achieving open education.

The integration of OER into curricula also supports the use of practical and interactive teaching methods. Open licences (usually Creative Commons licences) allow teachers to adapt materials and provide content directly tailored to the needs of their students and specific course objectives. In addition, the availability of OER in repositories facilitates networking and exchange between business researchers, which promotes the collective development and improvement of teaching materials.

Here is a selection of examples that provide an insight into the diversity of open educational resources in economics:

- **Textbook:** [Introduction to Econometrics with R](#) is an OER project of the University of Essen with an open review process and created with Bookdown and Gitbook.
- **Case studies:** [Open Case Studies](#) from the University of British Columbia with a thematic focus on sustainability issues. You can research further textbooks and case studies at EconBiz, for example.
- **Lectures:** Open Yale Courses Economics: [Open Yale - Economics](#)
- **Simulations:** [Econ Simulations](#) contains simulations licensed under Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International Public Licence.
- **Tutorials & Quizzes:** eCampusOntario's [Catalogue of H5P Content](#) contains downloadable content, interactive tutorials, quizzes, timelines and simulations on business and management, among other topics.
- **Interactive learning elements:** The project "Starting Point: Teaching Economics" offers "[Interactive Lecture Demonstrations in Economics](#)"

Economic networks, such as [CORE Econ - Economics for a changing world](#) and [The Economics Network](#), contribute to the creation and collection of OER.

Open Educational Resources as a key topic in the Open Economics Guide

The inclusion of OER in the ZBW's Open Economics Guide - the knowledge database for open science practices for economic research, which now has 125 background articles on open science, marks an important step towards the integration of open educational practices in economic research. According to the 2019 Open Science Study, OER play a role in the daily work of 45 per cent of all economic researchers.

The OER section of the Open Economics Guide now offers economic researchers comprehensive support to fully utilise the potential of open educational resources. Researchers are supported in recognising, using, creating and publishing OER through four key tools.

The guide makes it easier to enter the world of OER by showing how to recognise and use them effectively. Business researchers learn how to assess the quality of open learning and teaching materials and consider legal aspects in order to make an informed choice. It also identifies training and support opportunities to help researchers upskill in this area and optimise the use of OER in their teaching and research.

As effective research into OER is crucial to finding suitable and high-quality materials, the Open Economics Guide presents search strategies and provides an overview of repositories, portals and metasearch engines specifically for OER in economics. In addition, directories of open textbooks are presented that enable quick access to relevant teaching materials. For researchers who want to create OER themselves, the Open Economics Guide also offers practical tips and resources. From the creation of open textbooks to other OER formats, it provides strategies for creation, including the use of freely licensed images, audio and video. The guide also helps to select suitable OER tools by area of application and provides criteria for selecting these tools.

As the publication of OER is an important step in sharing your own knowledge with the community, the Open Economics Guide provides information on suitable publication locations and important considerations when publishing OER. It explains how to choose the right licence and introduces the TULLU rule to correctly label OER and thus maximise the visibility and usability of resources. The TULLU rule provides essential information for the use of Open Educational Resources (OER) and is composed as follows: (T) title of the material for clear identification, (U) author, who is named, (L) licence, which specifies the exact terms of use including the version number, (L) link to the licence, which enables access to the full licence text or, alternatively, a copy of the licence text, and (U) place of origin of the material, which is usually made accessible by a link. This precise information supports the transparent and legally compliant use of teaching and learning materials.

Why are open learning and teaching materials important?

The release of educational resources as OER enables free access to education for a larger group of people. This can be beneficial for both learners and teachers. The reasons in favour of OER include

- **No acquisition costs:** OER contribute to equal opportunities because no costs are incurred, for example for expensive textbooks.
- **Availability:** Digital OER are universally available and reach learners more quickly than printed textbooks, for example. They can also be used by many learners at the same time, no matter where they are.

- **Knowledge transfer:** OER can accelerate the dissemination of knowledge.
- **Self-organisation:** OER can promote self-determined learning.
- **Time saving and customisability:** Teachers can save time by reusing OER. They can also revise existing OER to suit their students and their own style.
- **Potentially higher quality:** Thanks to their open approach, OER offer more opportunities for feedback. This also includes (scientific) quality assurance as part of a more intensive peer review process. OER can also be continuously improved and updated.
- **Teaching innovations:** The exchange of OER promotes the emergence of new didactic concepts and the elimination of the traditional separation of learners and teachers in favour of dialogue-based formats. Students can be more easily involved in the further development of materials and contribute their ideas, new approaches and research questions.
- **Reputation through teaching performance:** Thanks to OER, the content created by teachers can reach more people and thus gain more visibility. The work performed in the course of teaching can thus be recognised more externally and enhance the reputation of teachers and their university.

About the Open Economics Guide:

The Open Economics Guide has been available online since its launch in September 2021. This free digital resource supports economics researchers with concrete assistance and advice on how to organise their research work openly. The focus is on imparting knowledge about open access and open data through application-oriented tips and tools. In addition to a continuously updated directory of currently over 130 open science tools, the platform also offers a calendar of events, a blog and a regular newsletter. With around 47,000 visits in 2023, the number of hits increased by 43% compared to the previous year.

Metadata quality & knowledge organisation



Key components in the ZBW

In today's information society, high-quality metadata and the efficient organisation of knowledge play a decisive role. The ZBW - Leibniz Information Centre for Economics has established itself as a competent institution in this field and sets standards.

How is metadata quality ensured at the ZBW?

High-quality, standardised and open metadata are central to the findability and selection of information resources. They also serve as a basis for publication analyses (metadata as research data). For the ZBW, the orientation of metadata towards future-oriented automated methods of formal and content indexing is a central aspect. The service for automated content indexing, which was developed by the ZBW's automated indexing team and is based on machine learning methods, has been in productive operation since 2019. High-quality, machine-readable (meta) data is essential for the further development of these and other machine learning methods.

Compliance with internationally recognised standards, such as the use of the RDA (Resource Description and Access) rules for current formal indexing or the ISO 25964 standard for thesauri and their interoperability with other vocabularies, ensures that metadata is consistent and interoperable, which facilitates the exchange and reusability of information. Similarly, the extensive linking to and recording of identifiers for publications and their linking to identifiers of persons, corporate bodies and terms - wherever possible - is crucial for the quality and efficient processing of the recorded data. In addition, the ZBW has highly qualified and experienced teams with expertise in library, media, information and metadata management as well as in economics, who are responsible for creating and maintaining the metadata. This expertise makes a decisive contribution to quality assurance in various contexts - for example in the maintenance of national authority databases such as the Gemeinsame Normdatei (GND) and the journal database as well as the K10plus database through the application of the respective cataloguing guidelines and the ZBW's own indexing rules. In addition, the ZBW follows a metadata quality concept based on various internal and external requirements. Regular quality checks and audits of its metadata are carried out to ensure that it meets the highest standards. These checks are an integral part of data quality management.

The ZBW relies on modern automated processes and technologies for metadata collection and maintenance. These help to minimise errors and ensure the consistency of metadata. They also help to make cataloguing and indexing processes more efficient.

One component of sustainable quality assurance is the continuous use of metadata management to prepare and convert

publisher metadata for import into K10plus in such a way that all metadata fields supplied and their content can also be integrated into K10plus datasets in accordance with the rules and regulations.

One significant result that improved metadata quality in 2023 is the exchange of free, non-standardised keywords in over 6,000 datasets using an automated process with existing descriptors from the Standard Thesaurus for Economics.

Cooperation as a driver for excellent metadata quality

Close cooperation with other libraries and organisations from all over the world is essential for ensuring excellent metadata quality. This includes measures such as the co-operative creation and maintenance of openly reusable metadata in joint databases or the exchange and further development of metadata standards, best practices and metadata tools. Examples include cooperation with the German National Library, the ZBW's involvement in working groups of the Joint Library Network and in working groups of the Competence Centre for Interoperable Metadata of the German Network Initiative e.V. Examples in an international context include the ZBW's intensive involvement in the development of the Global Open Knowledgebase (GOKb), cooperative data maintenance as part of Wikimedia Foundation community projects and its involvement in IFLA committees.

In the area of formal cataloguing, cooperation in the joint cataloguing database K10plus of the Südwestverbund and Gemeinsamer Bibliotheksverbund library networks continued to play a key role in 2023, for example through collaboration in K10plus working groups. Cooperation in the (further) development of all Electronic Resource Management (ERM) systems was also central to efficient work and ensuring data quality in 2023. In particular, the development of interfaces between the systems that guarantee the reuse of data once it has been recorded ensures standardised metadata quality across the systems. These include in particular the ERM module of the Open Source Library Service Platform FOLIO, the Global Open Knowledgebase (GOKb) - a database for licence packages, LAS:eR for the administration of consortia and the Electronic Journals Database (EZB).

In the area of content indexing, collaboration with the German National Library played a particularly important role in 2023 - especially in cooperative indexing and the reuse of existing indexing vocabulary such as the Gemeinsame Normdatei (GND). The ZBW completed a comprehensive mapping to the freely editable knowledge database Wikidata in 2023. Almost all concepts in the Standard Thesaurus for Economics (STW) were linked to data objects in Wikidata. This enabled the STW to be almost completely integrated into the knowledge database, which is structured as a graph and can be read and edited

by both humans and machines, in order to enrich it with factual and contextual knowledge for the further use of semantic technologies.

Cooperation is also essential in content indexing, especially in cooperative mapping projects, such as the one between the Standard Thesaurus for Economics and the Gemeinsame Normdatei (GND), which has been in existence for more than 15 years. The cooperation of the K10-plus expert group within the framework of the Digital Assistant (DA-3) is also significant. Under the leadership of the K10plus network centres of the Common Library Network (GBV) and the Southwest German Library Network (SWB), potentials for optimising the software are discussed and corresponding adaptations initiated. DA-3 is a web-based tool to support intellectual content cataloguing. External data from other library reference systems are translated into STW descriptors via mappings - the creation of cross-references between different controlled vocabularies - and displayed as suggestions. A convenient user interface speeds up workflows. In addition, DA-3 enables other libraries to utilise the intellectual and automatic STW content indexing of the ZBW via cross-concordances.

The ZBW uses future-oriented methods of knowledge organisation

Knowledge organisation is the process of structuring information and the knowledge it contains in such a way that it can be found, understood and used more easily. This is of particular importance in scientific and business contexts, where high-quality information is essential.

The ZBW uses knowledge organisation methods to manage its extensive databases. This primarily includes the Standard Thesaurus for Economics (STW) as a controlled vocabulary. The Standard Thesaurus for Economics is a comprehensive and structured vocabulary of clearly defined keywords that is primarily used in the field of economics. It is used for the standardised and precise indexing of economic publications and information. By providing a standardised vocabulary, the STW enables efficient search and retrieval of economics-related content in databases, library catalogues and other reference systems.

The Standard Thesaurus of Economics covers a wide range of topics from all areas of economics, including economics, business administration, finance, the labour market, international trade and many more, which are updated regularly. In the last update in 2023, a total of around 50 new terms and around 250 synonym references were added to the Standard Thesaurus of Economics.

On the one hand, the terms contained in the thesaurus are structured hierarchically, whereby relationships between superordinate and subordinate terms are depicted. On the other hand, terms are labelled as related to each other where appropriate. This not only makes it easier to navigate within

the thesaurus, but also improves the accuracy of information searches, as the context of the terms becomes clear. In addition to the standard thesaurus for economics, the ZBW also uses uncontrolled vocabulary such as the keywords assigned by the authors of the publications themselves. In 2023, for example, almost 87,000 title records were enriched with author keywords. These tools help to categorise and link information, which increases the findability and added value of the data.

The year 2023 was all about collaboration and automation. The ZBW further innovated its knowledge organisation methods and expanded the benefits many times over. 2023 was an important starting point for the ZBW to begin automating the suggestion management for new keywords for the Standard Thesaurus Economy and to set it up in a data-driven way. As part of a research project supervised by Prof Dr Ralf Krestel and Prof Dr Isabella Peters from the ZBW's research department, various AI language models were tested to determine the extent to which they can be used to generate term suggestions for the STW. An intellectual evaluation by the Thesaurus editorial team in 2023 delivered promising results.

Processes at the ZBW are constantly being reviewed and future-proofed in order to optimally support the ZBW's own services in their endeavours to provide researchers and students with efficient access to economic information. ■

“THE USE OF AI TOOLS

and the introduction of specific AI projects at the ZBW raises numerous new legal questions that have not yet been resolved. The challenge for me is to understand the complex requirements of my colleagues and to assess them from a legal point of view.”

STEFANIE RICHTER


Lawyer, focus on license negotiations in the program area of inventory development & metadata



IN DIALOGUE WITH THE COMMUNITIES



Open Science *Meet Up*



The Open Science Meet Up on 27 April 2023 in Berlin provided a platform for networking actors of open science practices in economic research. Under the direction of Prof Dr Marianne Saam and Dr Doreen Siegfried, fifteen researchers from the economic sciences discussed forward-looking topics for open science together with representatives of the ZBW in an interactive workshop.



Open Science ● *Symposium*

On 27 April 2023, the ZBW hosted the first Open Science Symposium. Under the direction of Prof Dr Marianne Saam, over 50 researchers from different career stages discussed the topic of reproducibility and replication in economic research. The Open Science Symposium presented contributions from four experts and emphasised the importance of transparent research methods for the credibility and further development of economics.



Workshop on information literacy in economics ●

The workshop "Information literacy and scientific work in economics" on 10 May 2023 at the ZBW emphasised the importance of critical thinking and scientific competence. Under the direction of Dr Tamara Pianos, the participants intensively discussed key skills for successful academic work, especially in economics.

● Retrodigitisation workshop

How can we deal effectively with materials from complex contexts? What ethical, legal and technical considerations need to be taken into account when digitising these materials? To find answers to these questions, around 60 experts from the German library sector gathered at the ZBW in Kiel from 11 to 12 May 2023 for the 5th Retrodigitisation Workshop. The focus was on the topic: "Dealing with materials from difficult contexts: Ethical, legal and technical aspects of digitisation".





Nestor Practitioners' Day

On 15 June 2023, the Nestor Practitioners' Day took place in Kiel at the ZBW with a total of 58 guests from all over Germany. This event offered practitioners from libraries, archives, museums and other cultural institutions the opportunity to discuss current developments, challenges and best practices in the field of digital long-term archiving.





Open Science Conference

The Open Science Conference, an internationally renowned event to promote the Open Science movement, was successfully held as an online conference from 27 to 29 June 2023. The conference brought together 221 participants from 33 countries to discuss the latest developments in the field of open science.

Highlights of the event included a panel discussion on the reform of research assessment and an interactive marketplace with 23 practical solutions for open science. The Open Science Conference, hosted by the Leibniz Strategy Forum Open Science and organised by the ZBW - Leibniz Information Centre for Economics, provided a rich platform for the exchange of ideas and the promotion of open science practices.



INCONECSS ● Community Meeting

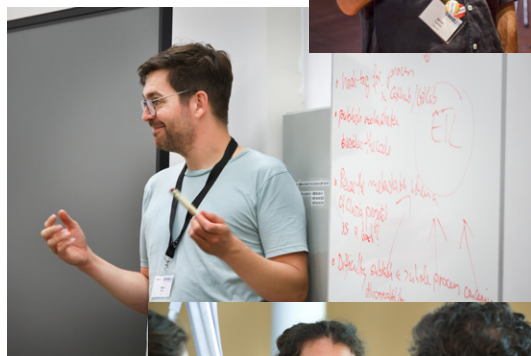
On 12 June 2023, Dr Tamara Piano hosted the 6th INCONECSS Community Meeting with a total of 175 participants from 31 countries. The topic was: "Artificial Intelligence: Impact on services". The second meeting took place on 13 November and brought together 100 participants from 35 countries virtually. Here, the participants discussed the topic of New Skills / New Job Profiles / Staff Development

Open Science ● Retreat

The ZBW continued its commitment to Open Science 2023 with two retreats. On 21 and 22 March, the focus was on discussing the reform of research assessment in the context of Open Science. On 14 and 15 November, the second Open Science Retreat of the year discussed challenges and opportunities for fruitful collaboration in commercial and institutional infrastructures. These events, with a total of 91 participants from 17 countries, provided an important platform for exchanging ideas and deepening the understanding of open science and research assessment.

SWIB – *Semantic Web in Libraries* ●

The annual symposium SWIB - Semantic Web in Libraries took place in Berlin for the first time in 2023. 124 participants from 17 countries came together from 11 to 13 September 2023. The 15th Semantic Web in Libraries (SWIB) conference, organised by the ZBW - Leibniz Information Centre for Economics and the North Rhine-Westphalia University Library Centre (hbz) in cooperation with the Berlin State Library, brought together 124 participants from 17 countries. The SWIB once again emphasised the increasing importance of Linked Open Data, Semantic Web and Machine Learning for libraries worldwide.

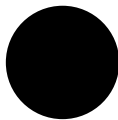


Festival of Science

Prague, Vienna, Madrid, Stockholm, Copenhagen and Kiel were all about science on 30 September 2023: as part of the Europe-wide European Researchers' Night, the Festival of Science in Kiel invites you to learn, research and discover. This event, which is supported by the ZBW and other scientific institutions in the region, is not only Schleswig-Holstein's largest science event, but also offers a multifaceted programme.



Barcamp Open Science



The ninth edition of Barcamp Open Science 2023 took place for the first time as a hybrid event. The organisers welcomed 40 participants on-site and 60 online, including guests from India. Barcamp Open Science is organised by members of the Leibniz Strategy Forum Open Science and Wikimedia Deutschland.



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