



# News of the Cologne Institute for Information Systems (CIIS) 06|2024

## Editorial



Many things are happening around and within CIIS. Some of the news I am privileged to share with you is highlighted in this newsletter.

**Rankings:** We should all be suspicious of rankings as we are tempted to love them when we are good at them—we can hate them when we are not. Moreover, their elegance in turning our multidimensional real world into a one-dimensional chart is both an advantage and a major disadvantage. For CIIS, we can love them, at least the ones that AIS has recently published (see the “News” section in this newsletter).

**Re-accreditation:** Our degree programs have been successfully re-accredited.

**Applicant numbers** for our degree programs are increasing despite the phenomenon that we are experiencing significant declines in other degree programs beyond Information Systems. In particular, our new Master’s degree course in Business Analytics and Econometrics has attracted even a record number of applicants.

CIIS, more specifically Markus Weinmann, is adding a so-called *An-Institut*, an organizational unit that strengthens our links with companies, especially in the field of Business Analytics and Artificial Intelligence.

We have a number of *post-PhD positions* to fill, including a W1 position on Digital Transformation and Innovation.

**Additional funding for our research:** CIIS is proud to report new, additional third-party funded projects (EU, state of NRW) in the fields of energy and health.

**Prizes:** Our research also receives external (competitive) recognition, including the EHI Science Prize 2024 for a dissertation by Jannik Rößler.

**More computer science lectures for our IS students to choose from:** Our degree programs benefit from the significant increase in the number of chairs in computer science at the University of Cologne and, accordingly, from the increase in lectures from this field, which are of interest to our IS students and expand the range of electives available to students.

**Become a follower:** Finally, please visit our LinkedIn pages as we have chosen this medium as our dedicated channel for CIIS communication.

Prof. Dr. Detlef Schoder

Founding and Managing Director CIIS



[ciis.uni-koeln.de](https://ciis.uni-koeln.de)

## CHE-Ranking of CIIS – Note from our Dean

Thrilled to share that our Master’s programs in Business Administration and Information Systems at the Faculty of Management, Economics and Social Sciences (Wirtschafts- und Sozialwissenschaftliche Fakultät; WISO) of the University of Cologne have received remarkable ratings in the latest CHE-Ranking survey! Business Administration soared with 4.4 out of 5 stars for the overall study environment, while Information Systems scored an impressive 4.5 in study organization and 4.4 for lecturer support. A big shout-out to our dedicated faculty and professional staff and the excellent atmosphere they foster! [#CHEranking](#) [#MastersProgram](#) [#BusinessAdministration](#) [#InformationSystems](#) [#UniversityOfCologne](#) [#AcademicExcellence](#)

Prof. Dr. Ulrich Thonemann

Dean of the WISO, University of Cologne



**LinkedIn**

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## Master Programs of CIIS

Under the leadership of CIIS University of Cologne's WISO faculty runs two Master degree study programs.

The institute's Master's programme in Information Systems offers an interdisciplinary approach with a focus on three areas: Business Analytics and Data Science, Digital Innovation and Entre-

preneurship and Digital Sustainable Society. These areas provide students with practical and theoretical tools to address current societal challenges in business, society and research.

The CIIS has also introduced the new Master's programme Business Analytics & Econometrics. The programme welcomed the second cohort of inter-

national students from various parts of the world. The program is highly competitive, with an admission rate of 6%. Throughout the program, we equip students with advanced analytical and econometric tools and prepare them for the challenges of the global market. Our aim is to educate future leaders in the field of business analytics who create lasting impact.

## Content of this editorial

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## IS Curricula Development

The German Gesellschaft for Informatik (GI) / Informatics Society is carrying out an initiative to update the GI's framework recommendations for Information Systems training in the German-speaking region. Prof. Schoder is leading one of the working groups on "Information Management and Digital Transformation". The new report/curriculum will be published in 2024.

## CIIS Directorate Members



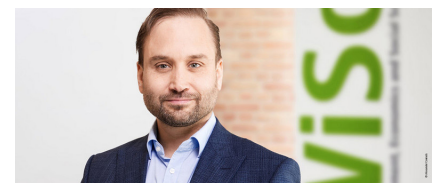
Information Systems and Information Management (Prof. Dr. Schoder)



Integrated Information Systems (Prof. Dr. Rosenkranz)



Information Systems for Sustainable Society (Prof. Dr. Ketter)



Information Systems and Systems Engineering (Prof. Dr. Seidel)



Business Analytics (Prof. Dr. Weinmann)



Information Systems and Information Management (Hon.-Prof. Dr. Gloor)



## New Programme in Digital Design at Business School

Are you ready to level up your skills in digital product and process design? Look no further! The University of Cologne's Business School is thrilled to announce its brand-new Executive Training Program in Digital Product and Process Design in cooperation with CIIS.

Designed for professionals seeking to stay ahead in today's rapidly evolving digital landscape, this comprehensive program offers cutting-edge insights and

practical strategies for innovation and transformation. Dive deep into the latest methodologies and tools for designing and implementing digital products and processes that drive success in the digital age.

Led by industry experts and academic leaders of CIIS, this hands-on program combines theory with real-world case studies, ensuring you're equipped with

the knowledge and skills to tackle challenges head-on and drive impactful change in your organization.

Learn more and register today at [Digital Product and Process Design](#).



## New Teaching & Research Assistants and Team Assistants

Let's give a warm welcome to Julia Campmann and Mei Wu-Gehbauer, who are joining CIIS as new research assistants this May! Julia comes to us from AXA Germany, where she was Head of Product Management Health Insurance. Now, she's diving into leading the Cologne side of the BMBF-funded research project EHDS4ALL (check out the details below) while also pursuing her doctoral degree.

As for Mei, she's no stranger to the innovation game, having served as Vice President and AI Lead at Deutsche Telekom IT. Now, she's bringing her wealth of experience to CIIS, where she'll be taking on the role of a teaching and research assistant, all while

continuing and finishing her doctoral studies. We're thrilled to have her on board for this exciting journey!

At the same time, Norman Ansorg has joined CIIS part-time as a team assistant for the professorships Weinmann, Seidel, and Rosenkranz. He is no stranger to the University of Cologne and has worked in administrative positions before, for example, at CECAD and at UCCard Support.

Let's show Julia, Mei, and Norman a warm CIIS welcome. If you have any questions or just want to grab a coffee, you can find them on the 6th floor of the Pohlighaus.



## AIS Research Ranking: Top Position for the CIIS!

The University of Cologne's Institute for Information Systems (CIIS) holds its position as the leading German institution in the research field and achieves excellent results in European and international comparison as well.

In the current Research Ranking of the Association for Information Systems (AIS), the CIIS of the Faculty of Management, Economics and Social Sciences again comes in at the top position: it is ranked first in Germany. In Europe, the CIIS is ranked fourth and 38th internationally, placing the institute in the group of the top fifty research institutions in the field of information systems worldwide. The ranking is based on the number of research publications in eight leading academic IS journals in the last five years, i.e., from 2019 to 2023. The AIS is the premier professional association for individuals and organizations who lead the research, teaching, practice and study of information systems worldwide.

Since its foundation, the CIIS has been a leading research institution in information systems. The institute brings together research topics such as artificial intelligence, digital transformation, digital innovation and sustainability – with applications in various areas including energy, mobility, financial and crypto markets, health and logistics.

[Read the News on the WISO website!](#)



## Unveiling the Nexus of Cognition and AI Development

Mei Wu-Gehbauer, Christoph Rosenkranz, and Phil Hennel explore how unlocking the potential of artificial intelligence (AI) hinges on the seamless interaction between users and AI-based systems. In this study, we delve into the pivotal concept of cognitive fit and the mechanisms that underpin it. Drawing from insights in information systems (IS)

literature and employing a revelatory case study, we illuminate the role of data science teams in shaping this cognitive fit. Our findings reveal that these teams employ supporting mechanisms to bridge the gap between users and AI systems, facilitating mutual understanding. By deciphering users' mental models and enabling AI systems to align with them, organizations can ensure a smoother

integration of AI technologies into decision-making processes. This research offers invaluable insights for organizations striving to overcome barriers in AI system implementation, paving the way for enhanced efficiency and innovation in the digital age. Delve deeper into our findings to harness the full potential of AI-based systems.

Read the full article [here](#).



## New PhD: Welcome Lazar Milosevic!

We are pleased to welcome Lazar Milosevic as the newest PhD candidate at the chair for Information Systems and Information Management of Prof. Schoder. Lazar joined our team in December 2023, and he arrives with an educational foundation in Information Systems, having earned both his Bachelor and Master degrees from the University of Cologne. His academic journey has been complemented by practical experience acquired through his role as a working student at an international IT consulting and services firm.

Lazar's research interests are rooted in the domains of Artificial Intelligence and Machine Learning, with a specific focus on their applications in financial markets and the blockchain/cryptocurrency sector. His objective is to investigate various use cases where ML and AI can be instrumental, including for example market descriptions, strategies for investor protections and an enhanced decision making.

Lazar transitioned to another endeavor within our institute—the Protein-Protein Interaction Prediction project. This initiative seeks to explore the capabilities of Large Protein Language Models (LPLMs) in bioinformatics, specifically focusing on predicting protein interactions.

This project aims to enhance our understanding of biological processes and discovery of new drug targets.

Given his commitment, we are confident that Lazar will make valuable contributions to our research at the CIIS.

## To Treat or not to Treat?

Conventional wisdom says that online ads, retention incentives, sales discounts, and other marketing tools work best when you know and understand your customers. Assigning the right treatment could persuade a customer to make another purchase; the wrong one could drive a customer away. Gas and electricity suppliers need to send the right promotion to the right households to prevent them from churning. E-commerce platforms need just the right incentives to push customers to buy more products. Retailers succeed when they offer precisely calculated discounts to boost sales. Finding what will work requires, from a technical perspective, modeling the so-called individual treatment effect (ITE). This approach represents the evolution from traditional approaches that either fail to evaluate treatment effects entirely or assess them only in aggregate rather than an individual level. Uplift modeling

is one of today's hottest approaches to uncovering ITEs—and there are many ways in which it deserves its reputation, from a theoretical perspective, as the best method for defining so-called treatment assignment policies. In our research we found an improved novel approach to uncover ITEs, which is more robust and less data- and application-dependent than previous methods. The efficiency of the approach was extensively tested in the context of activated, real marketing campaigns and savings in the six-figure range were achieved in individual campaigns with simultaneously lower churn rates. This work not only consolidates and expands the existing knowledge in the field of treatment assignment policies, but also provides companies with concrete tips on their use and optimization.

Read the full article [here](#).



## New JSIS Publication on Digital Innovation

Karl Werder (CIIS and IT University of Copenhagen) together with Theresa Bockelmann and Jan Recker (both University of Hamburg), Julian Lehmann (Arizona State University) and David Bendig (University of Muenster) showed that alliances are an effective means for firms to create digital innovations and published their study as an open access article in the Journal of Strategic Information Systems. Their results suggest that alliance portfolios—that is, networks of partnering firms—for digital innovations require a different configuration when compared with al-

liances for non-digital innovations. For instance, large and explorative alliance portfolios help with the creation of digital innovations while international alliances and alliances involving competitors do not. The study also suggests that volume and quality of digital innovations can be enhanced through alliance partnerships and that the configuration of alliance portfolios matters in terms of size, degree of exploration, internationality, and competition.

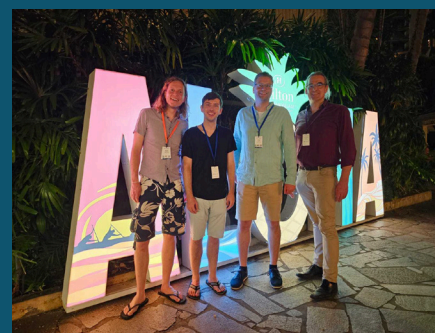
Read the full article [here](#).



## CIIS at HICSS 2024

2024 started with the 57th Hawaii International Conference on System Sciences (HICSS) in Waikiki, the longest standing IS conference worldwide. With an all-time high submission record, HICSS draws top scholars from academia and industry from over 60 countries to exchange ideas on information, computer, and system sciences. Four CIIS researchers presented their research contributing to a broad range of topics on information security

in the era of AI, cognitive fit in AI-based decision, body sensor networks in healthcare and financial fake news. Our researchers not only showcased their work but also contributed to discussions on cutting-edge research and broadened their academic network. At CIIS, we are proud to demonstrate cutting-edge research to contributing to the advancements in IS research.



## Science Award 2024 goes to Dr. Jannik Rößler

On the evening of February 28, 2024, around 250 top professionals were invited by the EHI Foundation and GS1 Germany to celebrate the 17th Science Award ceremony at EuroCIS in Düsseldorf. Jannik Rößler (University of Cologne, CIIS, supervisor: Prof. Dr. Detlef Schoder) was awarded the prize in the "Best Dissertation" category. The core of the dissertation are the results of the research field "Machine Learning in Marketing" pursued at the chair.

In the retail and consumer goods industry, business analytics and machine learning offer enormous potential for the automation of tasks and the optimization of business processes. The optimization of so-called "Treatment Assignment Policies" (TAP) is of central importance, as these are used by retail and consumer goods companies to acquire new customers in a more targeted manner, to cross-sell and upsell offers and to reduce churn rates. TAPs aim to target those individuals for whom the measure leads to the greatest change in behavior (aka "uplift modeling").

Based on the analysis of TAP methods and algorithms from two previously disjoint disciplines, which led to the largest comparison of methods in academic literature to date, Jannik Rößler himself developed a novel approach.

This is of great importance, as under unfavorable conditions even counterproductive results can be achieved with TPA or, more precisely, with the underlying approach of uplift modeling. This finding, which has been well substantiated by the work of Jannik

Rößler, stands in stark contrast to the frequently found assessment that such uplift modeling approaches are always the last resort in marketing campaign management. The work thus makes a very important contribution to the assessment, limitations and optimization of the TAP approach.

In the context of this evaluation, the thesis represents the largest documented and publicly available collection of data sets in the field of uplift modeling. Most of the dissertation has been published in leading scientific journals and conferences, such as the Journal of Interactive Marketing, the International Conference on Information Systems (ICIS), the European Conference on Information Systems (ECIS), and the Hawaii International Conference on System Sciences (HICSS).

Find Jannik's publications [here](#).



Prof. Dr. Detlef Schoder and Dr. Jannik Rößler at the award ceremony



## Re-Accreditation of our Study Programmes

We are very pleased to announce that our study degree programs Wirtschaftsinformatik (BSc) and Information Systems (MSc) have been re-accredited.

Only one condition was formulated, which concerns the infrastructure of the university as a whole: better technical infrastructure throughout the university concerning equipment and coverage of our Wifi – which was (rightly) demanded. WISO/the university now has to take care of this.

We're collaborating with MATNAT on manageable recommendations aimed at enhancing various aspects of our program, including orientation, formal cooperation, empirical analysis on study duration and teaching quality, evaluation procedures, stakeholder feedback, incentivizing Bachelor's degree stays abroad, examination formats and dates, module handbook refinement, and ethics topics incorporation.

We extend our gratitude to the Dean, Dean's Office members, Dean of Studies, committee participants, quality management groups, colleagues from administration and faculties, student council, and students for their valuable input in ensuring the quality of our degree programs. We also appreciate the productive discussions with reviewers. Many thanks to all involved!



## Funding of Projects: Epilepsy – E-PAL

CIIS (Prof. Schoder) together with the practice partner Monikit GmbH is being funded by the state of North Rhine-Westphalia as part of the "ZukunftBIO. NRW" initiative with funds from the "Zukunft Medizin" funding competition. Monikit is a start-up innovative medical technology company in the field of epilepsy. The collaboration aims to

overcome the challenges faced by people with epilepsy, a neurological disorder characterized by seizures, through the use of advanced machine learning and biomarker detection technology. The project focuses on the development of a user-friendly digital tool for the effective documentation and management of seizures. The collaboration between CIIS and Monikit ensures that the technol-

ogy can be seamlessly integrated into existing healthcare systems, promising personalized care and improved quality of life for patients. This project represents a significant step forward in epilepsy treatment. As development progresses, the collaboration has the potential to transform the way epilepsy is diagnosed, monitored and treated, and improve the quality of life for patients.

## CIIS at the SIG DITE PDW 2023

CIIS researchers co-organized and participated in this year's Paper Development Workshop (PDW) of the Special Interest Group (SIG) on Digital Innovation, Transformation and Entrepreneurship (DITE), held in Miami, Florida, in November 2023. The annual workshop brings together established and early-career researchers in the fields of digital innovation, digital transformation, and digital entrepreneurship to discuss and develop research projects.

Katharina Drechsler co-organized the workshop and presented her research project on the emergence and growth of Industrial Internet of Things-based systems. Mei Wu-Gehbauer and Christoph Rosenkranz shared and discussed their research on understanding cognition in the development of artificial intelligence-based systems. The workshop not only provided an excellent opportunity for CIIS researchers to receive feedback and exchange perspectives on the latest research on DITE topics, but also to connect and network with researchers with similar research interests from around the world.

### Promoting Digital Innovation - Innovation Champions in the Digital Age

Are you wondering how to foster digital innovation in your organization? Innovation champions, individuals who vigorously promote innovation against resistance throughout the development process, play a critical role in the success of innovation projects. Research at CIIS shows how organizations can support innovation champions through their decision-making and organizational design choices. In the digital age, the specific characteristics of digital technology, such as its rapid and continuous change and its reliance on highly diverse knowledge, challenge our understanding of what makes innovation champions successful. Katharina Drechsler's research highlights how organizations can respond to these changing circumstances and make decisions that empower innovation champions. For example, she shows how organizations need to carefully consider the profile of potential Chief Digital Officers (CDOs), executive champions of digital innovation. Depending on the CDO's profile and characteristics, the appointment of a CDO can positively or negatively impact a firm's future prospects. In addi-

tion, companies can foster championing behavior among their employees and empower champions by implementing a digital platform for employee-driven idea generation and innovation that follows certain design recommendations. To promote innovation champions in your organization, contact Katharina Drechsler ([drechsler@wiso.uni-koeln.de](mailto:drechsler@wiso.uni-koeln.de)).

See the following research for more insights:

- Drechsler, K. (2023). Promoting Digital Innovation and Transformation : Innovation Champions in the Digital Age. Bamberg: Otto-Friedrich-Universität.
- Drechsler, K., Reibenspiess, V., Eckhardt, A., & Wagner, H. T. (2021). Innovation Champions' Activities and Influences in Organisations – A Literature Review. *International Journal of Innovation Management*, 25(06), 2150066.
- Reibenspiess, V., Drechsler, K., Eckhardt, A., & Wagner, H. T. (2022). Tapping into the wealth of employees' ideas: Design principles for a digital intrapreneurship platform. *Information & Management*, 59(3), 103287.

### Farewell to Karl Werder!

Dr. Karl Werder, who has been an assistant professor and PostDoc at CIIS for the last couple of years, has left us for northern shores, namely Copenhagen. Starting April 1st, he will be associate professor for information systems at the Business-IT Department of the IT

University of Copenhagen. Congratulations Karl and good luck for this exciting new position! We will stay in touch!

## Graduation: Dr. Alexander Herwix

On 22 April, Alexander Herwix successfully defended his thesis "Toward a Responsible Design Science Research Ecosystem for the Digital Age: A Critical Pragmatist Perspective". Christoph Rosenkranz, Detlef Schoder, and Stefan Seidel served as examinees. Alex's dissertation addresses the need to navigate responsibly through the complex landscape of the digital age, where rapid advancements in information technology

(IT), especially in artificial intelligence (AI), present unprecedented opportunities as well as potentially catastrophic risks to society. It advocates for responsible innovation (RI) to harness the benefits of accelerating IT innovation while avoiding the most dangerous risks. The main objective is to initiate and support the development of an ecosystem for responsible Design Science Research

(DSR) to align DSR with the imperatives of RI, proposing responsible DSR as a „super methodology“ to address the significant challenges of the digital age.

We congratulate Alex on his graduation. He is now on the job market, and we wish him luck and all the best for the future!

## European Commission Funds INTELLIGENT Project with €5M Grant

European Commission has funded IS3 chair's project proposal INTELLIGENT (INteroperable Tools for nEtnetwork-aware, Ledger-based Local energy sharing and flexibility manaGement leveraging user engagement) with overall 5M€ for three years to develop several tools to facilitate customer-centric energy network. Our practical project is in the format of EU Horizon - innovation actions and has been evaluated with the highest possible score (15) by EC thanks to the excellent Consortia including mainly industrial partners.

The INTELLIGENT project will provide advanced peer-to-peer (P2P) technology leveraging and extending GSY DEX as an open-source P2P exchange software and demonstrate it in 4 diverse EU communities. INTELLIGENT's comprehensive P2P trading infrastructure includes interoperable decentralised energy exchange components, secure data exchange, and optimised trading and flexibility management for citizens

and grid operators. These tools will be open source and protocol- and regulation-agnostic, customisable for specific market requirements. Innovations centres on a bottom-up, asset-based energy market design with sophisticated, AI/ML and blockchain-powered trading and flexibility mechanisms, supported by dynamic grid fee models and interoperability with grid operators, asset management and other related services.

The CIIS's team leader, Dr. Talari, as the technical coordinator of the project who led the consortium during the proposal phase, believes that the INTELLIGENT project will evaluate various aspects of P2P energy trading to make it more accessible, secure and efficient. It will optimize the economic and environmental benefits for citizens while addressing electricity grid stability.

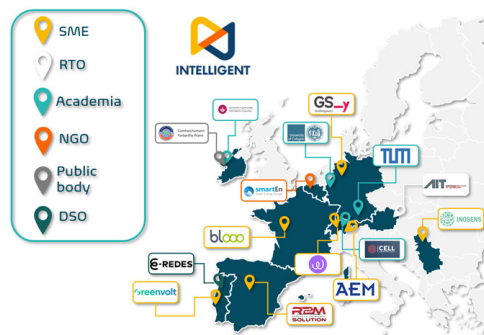
Very much looking forward to launching this exciting project on July!

## New BMBF-funded Research project: EHDS4All

EHDS4ALL is a research project aimed at revolutionizing healthcare data sharing and accessibility. By harnessing the power of advanced technologies and collaborative networks, EHDS4ALL seeks to break down barriers in healthcare data exchange, ensuring seamless communication and integration across diverse systems and stakeholders.

Through innovative approaches and interdisciplinary collaboration, EHDS4ALL aims to unlock the full potential of healthcare data, facilitating more informed decision-making, personalized treatments, and ultimately, improved patient outcomes. With a focus on inclusivity and accessibility, this project promises to transform the landscape of healthcare data management, empowering healthcare professionals and patients alike.

CIIS participates in the project as one of three universities. More about EHDS4ALL and stay tuned for updates on our groundbreaking research at <https://ehds4all.de/>.



This and previous newsletters can be found digitally at [www.ciis.uni-koeln.de/newsletter/](http://www.ciis.uni-koeln.de/newsletter/)

There you can also register for our e-mail newsletter.

## Did we spark your interest?

Please feel free to contact us if you have any questions.

We are at your service for questions concerning research, cooperations, or recruiting. You can reach us by e-mail:

[coop-ciis@wiso.uni-koeln.de](mailto:coop-ciis@wiso.uni-koeln.de)

# Imprint

**Cologne Institute for Information Systems**  
University of Cologne



## Address

Albertus-Magnus-Platz 1  
50923 Cologne

## Office Address

Pohligstraße 1  
50969 Cologne

## V.i.S.d.P.

Prof. Dr. Detlef Schoder (Managing Director)  
Prof. Dr. Christoph Rosenkranz (Deputy Managing Director)

## Editors

Janek Richter  
Prof. Dr. Detlef Schoder

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