HÖRSAAL I

News des Kölner Instituts für
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Editorial

Although notable research has already been conducted at CIIS on societal issues such as sustainability, energy, mobility, and health care, using and further developing AI/machine learning techniques, we consider an even more profiled approach by CIIS to social wellbeing.

This is motivated by (1) ongoing value discussions at university and faculty levels, (2) an intensifying discourse on whether the IS discipline addresses sufficiently grand societal challenges (Spindeldreher/Schlagwein/Schoder 2020), and (3) findings from a recent workshop on values and research topics conducted as part of the CIIS' own strategy days, in which "IS for Social Good" in general and "AI for Social Good" in particular emerged as the central candidate concept for the future self-image of CIIS.

Ad (1): There is a long-standing discussion about the core and aspirational values that a university has or should have. Candidate dimensions according to a WISO faculty-level strategy meeting include EASE, i.e., Ethics, Analytics,

Sustainability, and Entrepreneurship, thus updating and extending established faculty's approaches summarized in its dedication for Ethics, Responsibility, Sustainability / ERS and conceptualized in The Principles for Responsible Management Education (PRME), a United Nations-supported initiative founded in 2007 and for which the WISO faculty has been accredited.

Ad (2): There is room and rationale for IS as a discipline not only to meet the needs of companies in business and profit-making terms, but also to utilize and further develop IS' vast and powerful arsenal of problem-solving methods, concepts, and theoretical foundations in particular for non-profit, societal and broader welfare-creating goals, i.e., for social good.

Ad (3): We at CIIS will certainly strengthen "IS/AI for Social Good", and you as a student or researcher are welcome to get involved in tackling the world's most pressing challenges while creating powerful AI-based information systems. CIIS invites you to be part of this discourse and related research. Share your thoughts with us and drop us a line.

Prof. Dr. Detlef Schoder

Founding and Managing Director CIIS

1st in AIS 8 Ranking

In the current AIS 8 ranking of the Association of Information Systems, the Cologne Institute of Information Systems (CIIS) is ranked first in Germany, ahead of the Technical University of Darmstadt and the University of Mannheim. In a global comparison, CIIS comes in at 53rd place as of January 2022, placing it among the top 100. In Europe, CIIS comes in at 9th place, and at 2nd place within the German-speaking world (after the University of St. Gallen). The ranking is based on the number of research publications in eight leading scientific journals in the field of information systems from 2017 to 2021.

„From which of these 200 universities do you particularly like to hire graduates?" That, in a nutshell, is the core question of Wirtschaftswoche's annual personnel ranking of almost 600 HR managers in German companies. In this survey, in terms of the career opportunities for its graduates, the University of Cologne ranks among the top 3 universities in Germany for Information Systems education.

Universität zu Köln

Cologne Institute for Information Systems

The Cologne Institute for Information Systems (CIIS) – Kölner Institut für Wirtschaftsinformatik (KIWI) is part of the Faculty of Management, Economics and Social Sciences ("WISO") of the University of Cologne. The CIIS is formed by the research teams at the Information Systems (IS) Chairs for Information Management, Integrated Information Systems, Information Systems for Sustainable Society, Systems Engineering, and Business Analytics. Its Founding and Managing Director is Prof. Dr. Detlef Schoder, its Deputy Director is Prof. Dr. Christoph Rosenkranz. The lecturers of the CIIS provide teaching services on an equal footing with research in the Bachelor's and Master's programmes operated jointly with the Faculty of Mathematics and Natural Sciences as well as in postgraduate continuing education, including the University of Cologne Business School.

In our IS Master's programme we offer three main areas of study: (1) Business Analytics and Data Science, (2) Digital Innovation and Entrepreneurship, and (3) Digital Sustainable Society. CIIS recently heads the new Master Business Analytics and Econometrics (see page 6).

Content of this editorial

Strategy Meeting

In May 2022, CIIS had its internal two-day strategy meeting with international guests from Liechtenstein and Boston, USA, at a nice location outside Cologne. In addition to administrative issues (new building for CIIS, development of young researchers), the focus was on questions of positioning CIIS, the role of IS in the research landscape and strategic research considerations regarding topics, communication and (international) cooperation. Intensive and fruitful discussions developed around „IS / AI for Social Good" (see the editorial of this newsletter). The event was also a very good opportunity to socialize over good food and one or two tasty drinks.

New Members of the CIIS Directorate

In our last annual official meeting according to our statutes we elected Prof. Dr. Markus Weinmann (University of Cologne) and Prof. Dr. Peter Gloor (MIT and University of Cologne) as new members of the Directorate of CIIS. Welcome and thank you for your contributions!

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 (Vertr.-Prof. Dr. Chasin)

Business Analytics (Prof. Dr. Weinmann)

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

New Role: Institute Coordinator of the CIIS

In April 2022 Dr. Janek Richter assumed the new position as Institute Coordinator of the CIIS. He is a post-doctoral research fellow at the CIIS. Installed as an overarching role at the institute level, the Institute Coordinator aligns and manages teaching and related institute-wide activities of the CIIS. The goal is to offer guidance to the team for an optimal output in the areas of teaching, partnering with industry, and external presentation of the institute Janek previously received his PhD in Information System at the University of Cologne. His research interests include digital transformation and organizational change with and through IT. His research profile complements his teaching experience of over 10 years in the areas of information systems development, architecture, project management, and sustainable digital innovation. This combination makes him an ideal candidate as Institute Coordinator. Feel free to reach out to him with your ideas for innovation in teaching and related initiatives on the Institute level. You can find his profile on the institute's website:

https://is4.uni-koeln.de/en/team/post-doctoral-researchers/dr-janek-richter

Welcome Prof. Stefan Seidel!

Stefan Seidel accepts the official Call ("Ruf") by University of Cologne for the Chair of Systems Engineering starting January 2023. We are happy to have him soon on board. First lectures will start Winter Semester 2022/2023. Stefan currently holds the Chair of Information Systems and Innovation at the University of Liechtenstein and is an Honorary Professor at The National University of Ireland, Galway. His research focuses on digital innovation, digital transformation, and artificial intelligence in organizations and society. His work has been published in leading journals, including MIS Quarterly, Information Systems Research, Journal of Management Information Systems, California Management Review, Communications of the ACM, and several others. He is an Associate Editor for MIS Quarterly.

Welcome Jun. Prof. Ziyue Li!

The WiSo Faculty is pleased to welcome a new member. Since 1 March 2022, Ziyue Li holds the position of Junior

Professor for Machine Learning in Smart Markets. On behalf of the entire faculty, Dean Ulrich Thonemann welcomed Jun. Prof. Ziyue Li personally to the Faculty of Management, Economics and Social Sciences of the University of Cologne.

Prof. Li most recently worked at the Hong Kong University of Science and Technology (HKUST), where he also earned his PhD in Industrial Engineering and Decision Analytics.

The junior professorship for Machine Learning in Smart Markets is based at the Institute of Energy Economics at the University of Cologne (EWI).

His expertise in data science and machine learning is shown not least by his success in the HKUST Three Minute Thesis Competition (2021 - 2nd place), awards of the "Best Theoretical Paper" (Runner-up) and "Best Applied Paper" (Finalist) at the INFORMS 2021 Data Mining and Decision Analytics Workshop, awards of the "Best Student Paper" (Finalist) at INFORMS 2020 Data Mining Section, as well as the winner of the "Best Conference Paper Award" at 2020 IEEE International Conference on Automation Science and Engineering.

We are pleased to have gained a dedicated and renowned researcher in Ziyue Li and wish him all the best for his future work at the WiSo Faculty.

Cologne Institute Research Seminar Series 2022

The Cologne Institute for Information Systems continued to foster a vivid academic exchange and regularly invited scholars to present and discuss their research. During the summer term from April to July, CIIS hosted different scholars of Information Systems as part of its research seminar series. We hosted six scholars from Europe and North America, presenting their current work and exciting ideas. We started in April with Joe Valacich (University of Arizona, US) who talked about "Rigor, Relevance and Practical Significance: A Real-Life Journey to Organizational Value". In May Thomas Kude (ESSEC Business School, FR) shared his study on "Responding to platform owner moves: A 14-year qualitative study of four enterprise software complementors" followed by Abayomi Baiyere (Copenhagen Business School, DK), who talked about "The Digital X Phenomena". During June we enjoyed the talks from Yash Babar (Wisconsin School of Business, US) on "Spillovers in Shopping from Superchargers" and Alexander Benlian (TU Darmstadt, DE) on „Algorithmic Management: Bright and Dark Sides, Current Studies, and Research Opportunities„. We ended our series in July with the talk from Rodrigo Belo (Rotterdam School of Management, NL) on „ Algorithmic Explanations and Human Decision-Making: A Randomized Field Experiment in a Public Employment Agency".

5th International Workshop on Software-intensive Business (IWSiB)

Together with Prof. Dr. Sami Hyrynsalmi (LUT University, FI) and Prof. Dr. Xiaofeng Wang (Free University of Bozen-Bolzano, IT), Dr. Karl Werder organized the 5th International Workshop on Software-intensive Business (IWSiB), co-located with the International Conference on Software Engineering (ICSE) 2022. ICSE is the worlds largest conference on various topics related to the engineering of software technology. The workshop was held on 18th of May with a keynote from Prof. Dr. Birgit Panzenstadtler (Chalmers University of Technology, SW) on "Software-intensive business supporting resilience and sustainability for people". The workshop's participants discussed 12 papers on topics such as software startups, continuous practices, organizational management, and development & design. Jorge Melegati (Free University of Bozen-Bolzano, IT) served as the proceedings chair. More information about the workshop is available at http://iwsib.org. The IWSiB Community's next meeting will be on the 8th-11th Nov. at the International Conference on Software Business at the Free University of Bozen-Bolzano, IT (https://icsob2022.github.io/).

WI 2022 Doctoral Consortium

Christoph Rosenkranz, together with various other colleagues, served as a mentor on the virtual WI 2022 Doctoral Consortium. The target group is doctoral students in information systems (or a related discipline with a focus on information technology) in the second or third year of their doctoral studies. During the consortium, the 20 selected participants further developed their dissertation projects through coaching and high-quality feedback from experienced mentoring professors outside their own university.

Visiting Scholar and Guest Lecturer at GSU with DAAD Funding

Dr. Karl Werder of the Cologne Institute for Information Systems was a visiting scholar and guest lecturer from August 2021 till October 2021 at the Georgia State University in Atlanta, Georgia, US. He offered a class on database management systems as part of the Master of Science in Information Systems program. He also visited Prof Dr. Balasubramaniam Ramesh, chair of the Computer Information Systems department within the J. Mack Robinson College of Business. As part of their collaboration, they investigated the competing role of emotions in healthcare that influence the rejection of AI monitoring technology. The article was published in the Journal of Management Information Systems (https://doi.org/10.1080/07421222.2022.2096550). The visit was supported and funded by the German Academic Exchange Service, a national agency for cooperation in higher education.

Funding and non-funding despite funding approval

Third-party funding for research is regularly very demanding to acquire. Typically, an individual researcher, a research team of a chair or also alliances of researchers and practitioners/businesses apply for funding. These procedures are very competitive. To report on the "dark side" of the funding landscape: CIIS (there: Department IS and Information Management - Prof. Schoder) together with LH Cargo and Metrilus GmbH had fortunately initially received a funding commitment even "with high priority" within the framework of the aviation research programme LuFo of the Federal Ministry for Economic Affairs and Climate Action on the topic of "Digital Twins for the efficient palletization of heterogeneous air cargo based on Explainable AI (CargoPal-AI)". Unfortunately, after delays in the approval process, the funding commitment was surprisingly withdrawn by the project executing agency/the responsible ministry with reference to a lack of budgetary funds. This means a loss of funding for CIIS of well over one million euros and the potential halt of research for us in this area.

The Cologne Institute for Information Systems (CIIS) at the University of Cologne, headed by Prof. Dr. Detlef Schoder, and the Bonn-based Big Data pioneer Stockpulse GmbH launched an ambitious research project in October 2021 for the automatic detection of misleading or false reports related to the financial market. As part of the German government's National Strategy for Artificial Intelligence (AI) and the High-Tech Strategy 2025, the joint project is receiving significant funding from the German Federal Ministry of Education and Research (BMBF). The aim of the project is to develop intelligent software that automatically detects and categorizes so-called "fake news," which is generated and spread primarily by "malicious" social bots or fake accounts, in virtually real time and reports it to appropriate bodies, such as supervisory and regulatory authorities, internal monitoring units of stock exchange operators, and banks and financial service providers. The collaborative project will run for 30 months and operates under the official title "AFFIN: Automated and Digital Forensics of Publicly Available Data in Finance."

Capstone Project Information Systems

On June 15, 2022, the Product Show of the Capstone Project Information Systems was held again in person after four long semesters with COVID-19. Five teams presented their software solutions based on real-world cases provided by our partners, which the students developed over the course of the semester. The software applications included a chatbot that aims to reduce support requests, an event manager to organize team events, a telematics app to evaluate the driving during a car trip, a booking tool for meeting rooms, and an app that helps people in their personal development via peer-to-peer interactions. Congratulations to all participants for their impressive results and a special thanks to this semester's partners brandung, Kaufland e-commerce, shiftspace, viadee, and zeb.

shiftspace

is a digital coaching platform that builds on established cognitive-behavioral models. The application systematically guides users to build soft skills in the form of new behaviors that sustainably improve their resilience, empathy, and collaboration in the work environment. The need for this type of development has increased dramatically in recent years.

The project has been a recipient of the EXIST-Gründerstipendium since August 2021 and is supervised by Prof. Dr. Christoph Rosenkranz (CIIS) and the Gateway ESC.

Since the beginning of the funding, great progress has been made in product development and market launch. For example, the application is already being used for internal employee development at a state health insurance company and an international pharmaceutical company. Building on this momentum, additional enterprise customers are to be acquired and the product further developed to market readiness in the end-user segment.

In collaboration with a team of students of the department, a prototype is currently being developed to extend the application in the area of social interactivity. This capstone project was born out of high demand for scalable group formats for employee development and personal growth and was unveiled at the Product Show on 7/15/2022.

Shiftspace is currently looking for growth in software development, particularly for front-end technologies and UI/UX. For more information about the company, visit the website: www.shiftspace.com

Chameleon BGM

After 24 months of project work, the start-up Transfer.NRW-funded project Chameleon BGM by Malte Hendricks & Fritz Fried with Prof. Dr. Christoph Rosenkranz is now coming to an end. Chamelon BGM is intended to enable companies to digitalize processes in BGM (occupational health management), to increase employee health, and to offer employees additional incentives to participate in occupational health measures. With the Chameleon solution, companies can digitally map the holistic health management process. The internal CHM and HR department are provided with a real-time dashboard for the planning, implementation, participation figures, and evaluation of health interventions. In this way, the system reflects the change of general employee health and generates information about the effectivity of certain interventions for specific target groups. The first anonymized evaluation of health management data on employee health, enables companies to optimize and improve health management processes on the basis of data.

CIIS Social Events

Creating a thriving community and a great culture cannot be achieved with words alone. Therefore, the CIIS organizes social events on a regular basis to connect members of the five chairs and to enjoy socializing outside of the academic setting. These events have been particularly popular in the aftermath of the pandemic and have already spawned several new scientific collaborations. The format of our events ranges from barbecues to hikes to wakeboard sessions. We are looking forward to further events in the near future and are excited to see which joint projects will be launched as a result.

CIIS members hiking in Königforst

CIIS members playing volleyball during a barbecue in Volksgarten

MIS Quarterly publication: Designing Digital Markets Offerings: How Digital Ventures Navigate the Tension Between GenerativeE Digital Technology and the Current Environment

In a recent study, CIIS alumni Julian Lehman (Vrije Universiteit Amsterdam) and Jan Recker (University of Hamburg), together with Youngjin Yoo (Case Western University) and Christoph Rosenkranz, investigate how digital ventures in the German financial services industry dealt with a key tension as they design their new digital market offerings—the vision that builds on the generative potential of digital technology versus the reality they face in their environment in the here-and-now, with existing customer preferences, extant regulations, and legacy technology. Building on rich data from six case startups, they find that digital ventures use three designing mechanisms to resolve this tension. Through these mechanisms, digital ventures construct a buffer between the vision they gradually realize through their market offering and the here-and-now conditions of the environment that digital ventures enter.

https://doi.org/10.25300/MISQ/2022/16026

New Master Programme: Business Analytics & Econometrics

We launched a new master's programme on „Business Analytics and Econometrics" starting in October 2022.

Data analytics, digital innovation and big data are crucial developments for the upcoming challenges in all business and economic areas. Our programme offers a unique blend of traditional analytics (e.g. statistics, econometrics, optimisation, simulation) and modern analytical approaches (e.g. machine learning and artificial intelligence using R and Python) and merges these approaches with the teaching of groundbreaking knowledge in the areas of economics, management, and entrepreneurship.

This programme is right for you if you have...

- successfully completed a bachelor's degree in economics, mathematics/statistics, computer science, physics, information systems or business administration with an international background

- an affinity for mathematics, statistics and digital technologies as well as the ability to use your skills in these areas to solve real-world problems

- a liking for an entrepreneurial mindset

For more information, please visit the following link:

https://wiso.uni-koeln.de/en/studies/master/new-master-business-analytics-econometrics

Most innovative paper award at ECIS 2022

The first in-person European Conference on Information Systems (ECIS2022, in Timisoara, Romania) after the COVID-19 pandemic was intense for our institute; from presenting Ph.D. proposals at the doctoral consortium to publishing multiple high-quality research papers in the main conference session. For us, the conference's conclusion was also promising as our colleagues Muhammed Demircan, Ramin Ahadi, and Prof. Dr. Wolfgang Ketter won the Ciborra award for the most innovative research paper, titled "SUSTAINABILITY VS. PRICE: ANALYSIS OF ELECTRIC MULTI-MODAL VEHICLE SHARING SYSTEMS UNDER SUBSTITUTION EFFECTS."

In this work, we demonstrate the role of Information Systems in paving the path for a green and sustainable mobility system by encouraging shared mobility users to adopt more sustainable behaviors. We analyze the user behavior of a multi-modal vehicle sharing platform and investigate how demand management interventions could affect the platform's performance economically and environmentally. Our analysis zooms in on two specific user characteristics: a) users' mode (vehicle type) choice flexibility and b) willingness to pay a surcharge for more environmental-friendly vehicles. To do so, we design an agent-based model, simulating both the supply and demand sides of the mobility system, and calibrate its parameters with real-world rental data of multiple vehicle-sharing companies. We find the users' mode choice flexibility as a double-edged sword, which could build up disadvantageous performance in a dominant price-sensitive user population while significantly reducing operational and environmental costs once users tend to pay an additional premium for more environmentally sustainable vehicles.

ISR Best Paper Award

Wolfgang Ketter and his colleagues Jingjing Zhang (Indiana University) , Gediminas Adomavicius and Alok Gupta (both University of Minnesota) won the prestigeous Information Systems Research (ISR) Best Paper Award for their Paper: Consumption and Performance: Understanding Longitudinal Dynamics of Recommender Systems via an Agent-Based Simulation Framework.

https://doi.org/10.1287/isre.2019.0876

ISR is one of the two premium Information Systems Journals world-wide.

MIS Quarterly and ISR publications on Human-AI collaboration

In 2021 Wolfgang Ketter and his colleugues Andreas Fügener, Jörn Grahl and Alok Gupta published a paper on Human-AI collaboration (DOI: 10.25300/ MISQ/2021/16553). They investigated how advice from an AI affects complementarities between humans and AI, in particular what humans know that an AI does not know. They find that human choices converge towards similar responses improving individual accuracy.

However, as overall individual accuracy of the group of humans improves, the individual unique human knowledge decreases. Based on this finding, they claim that humans interacting with AI behave like "Borgs," that is, cyborg creatures with strong individual performance but no human individuality.

In 2022 they published a paper on cognitive challenges in human-artificial intelligence collaboration (DOI: 10.1287/ isre.2021.1079) finding that the AI outperforms humans when both work alone. However, when the AI delegates work to humans as part of a collaboration, they can outperform the AI working on its own. In constrast, human delegation of tasks to the AI, was not beneficial.

Farewell to Birgit Suhrenbrock

At the end of the summer semester 2021, Birgit Suhrenbrock has left the CIIS and transitioned into her retirement. As secretary assistant, Birgit served the Chair for Information Systems and Systems Engineering and the Institute on endless occasions. Throughout her nearly decade-long career at the University of Cologne, she worked with three different generations of Professors at the Chair.

Birgit represented a pillar of continuity and quality in the Chair's administrative and organizational processes and structure. Among her most important contributions were the onboarding of new colleagues and flawlessly keeping the processes of the Chair going.

In her retirement, she will focus on her greatest passions such as traveling and the enjoying the musical arts. We thank Birgit for her extraordinary efforts and the time we shared together. We dearly miss her joyful nature at the Institute and wish her all the best for the future!

Graduation Dr. Tim Dreesen

On April 21st 2022, Tim Dreesen successfully defended his thesis "The Impact of Control on Teams in Agile Information Systems Development". Christoph Rosenkranz, Sean Hansen (Rochester Institute of Technology), and Friedrich Chasin served as examinees. Tim investigated the balance between team autonomy and different elements of control as enacted by different agile practices. Using both qualitative and quantitative data, Tim investigated how control enactment can be linked to agile practices while considering different control styles, and how different types of control influence autonomy and performance in agile teams. While investigating this over the course of four years, Tim also got married, fathered a daughter, and build a house – a very busy, interesting, and challenging time! After working as a research and teaching assistant at CIIS, Tim joined Aldi Nord last year. We congratulate on the graduation and wish him all the best for the future!

Bachelor's & Master's Theses

At the end of each study program is the final thesis. Finding an interesintg topic that is relevant from both a practical and a scientific perspective can be challenging for students.

The five chairs of the CIIS offer bachelor's and master's theses in many different topic areas. The theses can be of purely theoretical nature or include the implementation of software, the application of data science, etc. You can find information on potential topics on the following websites:

https://wim.uni-koeln.de/de/studium/abschlussarbeiten

https://iis.uni-koeln.de/de/teaching/theses

https://is3.uni-koeln.de/en/teaching

https://is4.uni-koeln.de/en/teaching/theses

If you are interested in a topic but cannot find a specific thesis that is interesting for you, do not hesitate to get in contact with the corresponding supervisors. They might find a thesis within the respective topic that matches your interests.

This and previous newsletters can be found digitally at 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.

Phil Hennel and Janek Richter are at your service as contact persons - whether for questions on research, cooperations, or recruiting. You can reach us by e-mail:

coop-ciis@wiso.uni-koeln.de

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