

Refereed Proceedings - Abstracts

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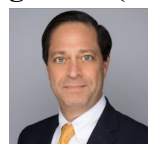
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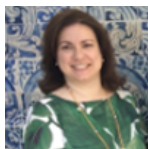
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KM2024 Conference
Pre-Conference Industry Day
SGH Warsaw School of Economics, Warsaw, Poland
Themes: Knowledge Management, Cybersecurity, Learning, and Information Technology
<https://iiakm.org/conference/>

Invited Keynote
Addressing the Digital Transformation in Higher Education Degree Programs

Jeff Angle

Sr. Director of Academic and Workforce Development, ISACA

<https://isaca.org/>

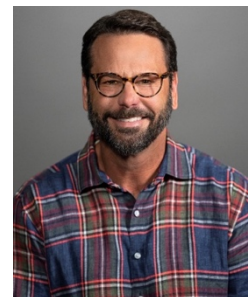
Abstract:

Problem statement: Why are IT and Cybersecurity domains both trans and interdisciplinary and what are institutions of higher education doing to solve this issue?

Our approach: Schools are beginning to realize that across the institution colleges, there is need to integrate IT and Cybersecurity domain areas within their respective programs. From programs such as supply chain, health informatics, criminal justice, law, and accounting, these domain areas need to include IT audit, risk, governance, security, and data privacy. Higher Education is realizing that MBA and Supply Chain students need to understand cybersecurity, law students need to understand risk, and in our new digital world, those students in Criminology need to understand cybersecurity forensics and audit. The landscape has tilted so far from a digital standpoint, that even the CPA exam now includes a section on IT Systems and Risks. From CISA to CMMI, ISACA is forging new models to partner with higher education and map out this new paradigm together. ISACA's mission is to level the global playing field for all members of society and equip them with the skills and credentials to begin or enhance their IT, cybersecurity, and any career that is impacted by technology. ISACA lives in the confluence of academics and the workforce, and our role is to convene the IT workforce, understand their needs, and develop the knowledge and rubrics to certify individuals for those job needs. We achieve this by providing students with the knowledge, skills, and abilities mapped to job practices and delivering them at scale. Our new model focuses on bringing these skills and associated opportunities to high schools, higher education, and adult learners from around the globe. Our model is driven by our 180,000 members who typically hire talent and recognize that the traditional education model is not preparing students for the jobs they are trying to fill. To fill the talent gap and support the learner journey our 225+ chapters and their 180,000 members across the globe, mentor, support, instruct and hire our students. Through this unique model, ISACA provides equity and workforce access to students from all backgrounds and bridges the divide between education and the workforce.

About the Speaker:

Jeff Angle is currently Senior Director of Academic and Workforce at ISACA, Chicago, USA. Jeff is a highly experienced executive focused on the education of the future workforce. He has held executive level roles with ETS, Pearson, HMM, and Arizona State University. Jeff has developed successful academic and workforce development programs throughout the US, Middle East and the LATAM areas focused on upskilling students in secondary and post-secondary education. In his spare time, Jeff is faculty at the W.P. Carey School of Business at Arizona State University.



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Invited Talk
Cloud Computing for Machine Learning

Michał Sierakowski

zStack Sales Leader, Poland, Baltic Countries and Ukraine, IBM, Poland
<http://www.ibm.com.pl>

Abstract:

Problem statement: The use of different cloud services models has become nearly a de facto standard across industries although its adoption varies based on the operational features and cost optimization. We will focus just on the pragmatic reasons to use cloud services for machine learning and its advantages over the proprietary variant. Also, some alternatives for application modernization to achieve cloud native operability will be discussed.

Our approach: IBM Cloud is an enterprise cloud platform designed for even the most regulated industries, delivering a highly resilient, performant, secure and compliant cloud. Obviously, it is just one part of many more hardware, software, and services offerings coming from IBM, though the company focus on cooperation with academia brings opportunities to have the best of two worlds i.e. leverage enterprise-level offerings to educate next generation experts and foster their talents that might subsequently conclude with a proven entrepreneurship. Wrapping up, an access to infrastructure and required software should not only be perceived as a roadblock, but with the support of companies like IBM will enable more talents to take off with their ideas come true.

About the Speaker:

Michał Sierakowski graduated from several European universities and is an active promoter of cooperation between academia and business. On top of leading the top-notch IBM hardware division in Poland, Baltic Countries, and Ukraine he is also an Assistant Professor at the Faculty of Mathematics, Informatics and Mechanics of the University of Warsaw and former fellow of the Spanish Agency for Cooperation and Development.



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Invited Talk
Good Practices in Conducting International Research Projects

Anna Ruman
Business Development Director
ABR SESTA
<https://abrsesta.com/>

Abstract:

Problem statement: Why are industry certificates and consultations necessary for effective research projects and how to protect yourself against the threats of bots and technology development?

Our approach:

ABR SESTA focuses on dialogue with its clients right from the research planning stage. We effectively translate business objectives into research objectives. We carry out international projects advising on techniques and sample selection taking into consideration the peculiarity of local markets. In addition, we work according to ESOMAR and OFBOR standards, which we co-created in Poland. We are also aware of the threat of technological developments in the research industry. We continue to introduce new ideas and technological solutions so as to build a distinct offer on the market. We want to be leaders in our field and we will do our best in order to maintain our high position in Poland.

About the Speaker:

Graduate of Management and Marketing at the Warsaw School of Economics and Postgraduate Studies "Psychology of Market Behavior" at the Faculty of Psychology, University of Warsaw; member of PTBRIO, member of the CatMan Working Group at ECR Poland and co-author of the publication "Good Practices of Category Management". She has been working in marketing research since 1999. In ABR SESTA she is responsible for the implementation of the agency's sales policy, conducts and supervises research projects, prepares methodological, execution and business assumptions for the implemented projects, and prepares reports and recommendations. She specializes in research on buyer behavior and preferences, and marketing communication as well as retail audit projects.



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Invited Talk
Fighting with fire – can an organization prepare for a crisis?

Anna Winiecka

Head of Security BDS/Eviden (Atos Group)

www.eviden.com

Communications and Marketing Director, Program Chair/ISACA Warszawa

www.isaca.waw.pl

Abstract:

Can organization prepare for crisis? Crisis Management is like fighting with fire and like firefighters you need to be equipped: with tools, knowledge and experience which can be gained through trainings. Let's try to identify those aspects and translate them into crisis management process and to understand and learn how the challenges can be addressed. Tools are the easiest part to identify: applications, stakeholders, backups and much more. What about the knowledge? For such process you need to have policies, workflows, communication paths established. But what about training? Can we really prepare for unknown? In this presentation I will give an overview on how you can do it in practice. Crisis Management process described within this presentation reflects the implementation within Atos Group to address the expectations of internal and external stakeholders.

ISACA provides tools and resources for identifying, assessing, and managing IT risks, which are crucial in crisis management. Regularly published books, articles, and research on crisis management, along with numerous training sessions and workshops, strengthen organizational preparedness.

About the Speaker:

Anna Winiecka is currently Head of Security for BDS division within Eviden (part of Atos Group) responsible for Security, ISMS and managing the work performed by Security Officers for mentioned BDS division. In addition to that she is Global Process Owner of Security Incident and Event Management Process as well as Cyber Crisis Management and Global Service Owner for internally provided CERT services: CSIRT, Threat Intelligence, Advanced Threat Hunting and Phishing Control. Anna has over 16 years experience in IT and almost 10 years in Cybersecurity. She holds CISM, ISO27001 and ISO20000-1 Lead Auditor, ITIL v3 Foundation and ITIL Release, Control and Validation certificates. She holds Master's degree in Computer Science (Security of Information Systems) and Engineer's degree in Computer Science (Applied Informatics). Since 2022 Anna is Board Member of ISACA Warsaw Chapter in the role of Communications and Marketing Director and since April 2024 also Program Chair.



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Invited Keynote
Cybersecurity of Consumer Devices

Tomasz Chomicki

Business Development Director,
Samsung Electronics, Poland
www.samsung.com

Kamil Grondys

Principal Solutions Architect

Abstract:

Mobile systems are inherently vulnerable due to their connectivity, data storage, and application diversity. Samsung Knox, a mobile security platform developed over 13 years, aims to mitigate these risks by providing a multi-layered defense system. This abstract explores common vulnerabilities in mobile systems and delves into the key security mechanisms employed by Samsung Knox, such as hardware-backed security, data encryption, and secure boot processes. The platform's effectiveness is underscored by its adherence to rigorous international security standards and certifications, including Common Criteria. This overview demonstrates Samsung Knox's commitment to providing a robust and secure environment for mobile users.

About the Speakers:

Tomasz Chomicki is committed business developer and evangelist of new technologies. He has been professionally involved with Samsung Electronics Poland for ten years. Being responsible for business development, creation of strategic business partnerships, including the creation of innovative projects with public administration, and public policy in the aspect of technical solutions. Member of the largest chambers of the IT and telecommunications and consumer electronics industries: ZIPSEE Cyfrowa Polska, PIIT, KIGEiT and the Sectoral Competence Council for Telecommunications and Cyber Security. He actively cooperates with the academic community of the Warsaw School of Economics and the State University of Information Technology and Entrepreneurship in Łomża (as a representative of the University Council).



With over 20 years of experience in the cybersecurity field, Kamil has established himself as a leading expert in mobile security. Since joining the B2B team at Samsung in 2016, he has served as a Solutions Architect, designing and implementing comprehensive cybersecurity solutions for a wide range of clients. Kamil works closely with government agencies and key Samsung customers to address their unique security challenges. His expertise has earned him invitations to speak at prestigious institutions such as Stanford University and the University of Cape Town.



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Invited Talk
Big Data to Support Big Banking

Rafał Zarzycki

Director of Transactional Banking Implementation, Santander Poland
<https://www.santander.pl/>

Abstract:

Problem Statement: Why proper management of big data is crucial for banking business and is current AI meeting transactional requirements at the level expected by (and from) the bank?

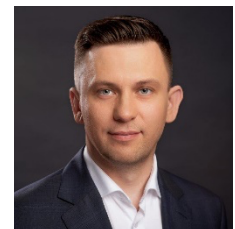
Our Approach: Big data in banking is definitely an important issue but for short session. The aim is to focus on three aspects of its usage looking at transactional part.

- Tailor made solutions, reports – banks also have to make that extra mile from time to time and follow specific customer needs even though vast majority of business is well regulated. This way whole organization can learn and benefit in future tasks.
- Regulations, AML, NBFI – when you ask questions but regardless of business trust have to check the answer multiple times, continuously. To develop the business there is a need for robust processes and tools, coordinated in multiple areas of competences.
- Transactions management integration – solutions to communicate with clients ERP systems, requirements and implementation steps. You don't have to use bank website/interface to process transactions but there is no space to compromise security.

In transactional banking there is always big data which brings concerns and opportunities. Role of the bank is to use it for best possible customer experience.

About the Speaker:

Rafał Zarzycki is currently managing a team in Transactional Banking Department in Santander Bank Polska, Warsaw, Poland. His professional experience includes various industries including FMCG, heavy industry and of course banking. As a mathematician he fits all the business roles with original education. Primary goals related to current position are facts/data based strategic recommendations and finding enablers for sustainable growth.



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Invited Talk
Blockchain, why do we trust on-line transactions?

Małgorzata Michniewicz
Member of the Board - ISACA Warszawa
www.isaca.waw.pl

Abstract:

The rapid development of blockchain technology has significantly changed the landscape of online transactions, offering unprecedented levels of security and trust. In this presentation, I will present the evolution of blockchain, examining its basic principles and the mechanisms that underlie its reliability. The key to this trust is consensus algorithms such as Proof of Work and Proof of Stake, which ensure data integrity and prevent fraud. Additionally, I will present applications of blockchain beyond cryptocurrencies, including supply chain management, smart contracts, and digital identity verification. By decentralizing data and eliminating intermediaries, blockchain promotes transparency and increases trust in digital interactions. Through a comprehensive analysis, this presentation sheds light on why blockchain has become a cornerstone of modern online transactions, driving innovation across diverse industries.

ISACA supports emerging technologies such as Blockchain, AI, Cloud and IoT by providing frameworks and guidelines that enhance security and trust in these technologies. Offers certifications and training that prepare professionals to manage risk and control in the context of blockchain, thereby building the credibility of online transactions.

About the Speaker:

Małgorzata is a graduate of the University of Economics in Krakow, majoring in "Information Science and Econometrics", and postgraduate management studies in "IT Project Management" at the University of Warsaw. Associated with IT for 30 years. She built an information security management system at many organizations. Project manager for the construction of the Security Operations Center Concept for ZUS. Personal data protection officer at the Central Sports Center and all Olympic Centers. She advises, trains and audits private enterprises, government organizations in the field of cybersecurity, business continuity and blockchain. She is certified: ISO 27001 LA, ISO 22301 LA, ISO 9001 LA, CDPSE, PRINCE, P3O, MoR, ITIL, CyberSec, COBIT. She has been active in the ISACA Warsaw Chapter association for 12 years. PhD student at the Faculty of Cybernetics of the Military University of Technology, her research area includes consensus mechanisms used in blockchain technology.



KM Conference 2024

3 July - 6 July 2024

SGH Warsaw School of Economics, Warsaw, Poland

Themes: Knowledge Management, Cybersecurity, Learning, and Information Technology

<https://iiakm.org/conference/>

Keynote Lecture

Effectively Informing Public Policies with Digital Twins, AI and Digital Technologies

Professor Giovanna Di Marzo Serugendo

Professor and Director of the Computer Science Center of the University of Geneva, Switzerland

Keynote Overview:

Determining an effective public policy that addresses a given problem remains a complex and difficult task. Evidence-based policy making is a public policy development process that considers evidence as the central element for making the best-informed decisions regarding the choice, design and implementation of public policies. This presentation discusses the notion of evidence revealed by digital techniques such as interactive data analysis and visualization, artificial intelligence or digital twins to understand the present, anticipate the future, evaluate alternatives, or prescribe solutions. Specific examples and concrete projects related to sustainable development illustrate the presentation. The presentation ends on the potential of digital twins and AI in other domains (e.g. GLAM, archeology, humanitarian crises).

About the Keynote Presenter:

Prof. Giovanna Di Marzo Serugendo received her Ph.D. in Software Engineering from the Swiss Federal Institute of Technology in Lausanne (EPFL) in 1999. After spending two years at CERN (the European Center for Nuclear Research) and 5 years in the UK as Lecturer, she became full professor at the Geneva School of Social Sciences, University of Geneva in 2010. Since 2016, she is the Director of the Computer Science Center of the University of Geneva, Switzerland. She has been nominated in 2018 among the 100 digital shapers in Switzerland. Her research interests relate to Semantic AI, multi-agent systems, digital twins and decentralised software with self-organising and emergent behaviour. This involves studying natural systems, designing and developing artificial collective systems, and verifying reliability and trustworthiness of those systems. Giovanna co-founded the IEEE International Conference on Self-Adaptive and Self-Organising Systems (SASO) and the ACM Transactions on Autonomous Adaptive Systems (TAAS), for which she served as EiC from 2005 to 2011. She recently set up a Digital Innovation Hub (2019) at the University of Geneva which aims at developing innovative services for the academic community, as well as other public, private or international organisations bringing together students, researchers and stakeholders.



KM Conference 2024

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<https://iiakm.org/conference/>

Keynote Lecture

***Artificial Intelligence: From Specialized Algorithms
to Business Model Transformation***

Professor Tymoteusz Doligalski

Vice-Director for InterCollegium Centre for Artificial Intelligence and Digital Platforms
SGH Warsaw School of Economics, Poland

Keynote Overview:

Artificial intelligence has journeyed from being the domain of specialized algorithms to a central force in the transformation of business models. This keynote will explore the complex evolution of AI, charting its path from niche applications to its current position as a cornerstone of modern business. As we navigate through this transformation, the speech will highlight AI's pivotal role in challenging traditional paradigms, driving innovation and transforming business models. Particular attention will be paid to two dimensions of the AI transformation: automation and augmentation.

About the Keynote Presenter:

Tymoteusz Doligalski is an Associate Professor at the e-Business Department of the Institute of Information Systems and Digital Economy, SGH Warsaw School of Economics. He researches the functioning of Internet companies from the perspective of business models and the impact of artificial intelligence. His recent publications include the article "*Common typology of multi-sided platforms and virtual communities*", the monograph "*Disruptive platforms*" and the working paper "*Programmatic advertising ecosystem as a multi-sided platform*". He is also the leader of the team responsible for the principles of using artificial intelligence in the preparation of written assignments at SGH Warsaw School of Economics. He is the coordinator of teaching programmes on e-business and internet marketing. He has supervised student teams that have won competitions on the use of search engines in marketing (1st place in the world in 2012, 2014 and 2022, 1st place in Europe in 2011). He publishes his research notes on the blog: doligalski.net.



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<https://iiakm.org/conference/>

Keynote Lecture

**Challenges Associated with Investigation of the Impact of Artificial Intelligence,
Cyber, Electronic and Cognitive Warfare on National Defence**

Professor Andrzej Najgebauer

Professor of MUT, Leader of Modeling, Simulation and Decision Support Research Team
Cybernetics Faculty, Military University of Technology, Poland

Keynote Overview:

With the increasing threat of large-scale warfare and the already ongoing war in cyberspace, there is an acute need to adapt to the new challenges and acquire defence capabilities in all domains of conflict. For this to happen, we should understand what the use of new technologies in warfare is all about. The concept of multi-domain operations and different types of operational capabilities will be presented, including kinetic capabilities, artificial intelligence, cyber capabilities, electronic warfare and cognitive warfare. In order to study the impact of new capabilities on national defence, then we should obtain knowledge of the baseline defence capabilities. Ideas for researching and planning the development of defence capabilities will be presented. For a method called Capability Based Planning (CBP), conflict scenarios will be demonstrated and how to progressively study the impact of new technologies and capabilities starting with traditional warfare in the land and air domain and then including cyber, electronic warfare and cognitive capabilities. A prototype of an IT toolkit for strategic planning will be used to support the analysis and optimisation of the use of military response forces, taking into account operational criteria and cost criteria. The scope of the analysis carried out obviously concerns hypothetical situations and hypothetical data.

About the Keynote Presenter:

Professor of MUT Andrzej NAJGEBAUER Ph.D., D.Sc. - Leader of Modelling and Simulation for Decision Support in Conflict and Crisis Situations Team. Head of Operations Research and Decision Support Department. He was the Vice-Rector of Military University of Technology for scientific affairs (2008-2012), Dean of Cybernetics Faculty (2005-2008). He has Master's degree, Ph.D. and Certificate, Doctor of Science in Computer Science, Decision Support Systems. His scientific and professional also educational work is connected with theory of systems, artificial intelligence, modelling and simulation, modelling and designing of military decision support systems, conflict analysis, threat prediction, war games designing, exercise and training systems (CAX) – designing and development, cybersecurity and cyberwar. He was project leader of Polish Army Simulation System for CAXes. He is the member of IFORS and member of Polish Society of Operations Research and Systems Analysis, vice-president of Polish Society of Computer Simulation. He is Polish principal member of STO/NATO MSG. He is the project leader of many Polish or international projects on Decision Support Systems in the area of Security and Defence. He was an expert in the Strategic Defence Review for simulation and optimization analyses of Capability Based Planning and Budgeting of Polish Armed Forces. He is a member of special group of analysts, who participated in the evaluation of possible results of international war game for eastern Europe. He was the supervisor of 10 doctorates, and also an organizer and chair of many international scientific conferences in the area of Military Communication and Information Systems and Computational Intelligence. Author of over than 130 publications.



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<http://www.iiakm.org/conference/>

Conference Workshop

Knowledge Management Quiz

Dr. Julita Haber¹, Dr. Christiaan Maasdorp²

¹ Associate Clinical Professor, Fordham University, USA

² Senior Lecturer, Stellenbosch University, South Africa

Workshop Overview:

The KM Conference brings together experts in Knowledge Management, Organizational Learning, Cybersecurity, and Information Technology together, many of whom are lecturers in these fields. The question is when were we subjected to an examination? This year at the KM Conference, an informal exam is on the cards!

The preconference workshop will take the form of a team-based quiz (based on the format of pub quiz nights). Delegates will participate in small teams of three or four members, self-formed or assigned. Requisite variety in team formation might prove decisive.

The facilitators will act as quizmasters and determine the topics, rules, scoring, and tie-breaking. The quiz will comprise five rounds of five questions that cover a variety of topics. Bonus points are available for the best team name, the most creative (wrong) answer per round, for being in the last place, or for whatever strikes the fancy of the incorruptible quizmasters.

During a final bonus round, we will turn to more serious questions regarding the future of Knowledge Management and our role as academics. Teams will have the opportunity to reflect on the set topics and give feedback to the plenary.

About the Workshop Facilitators:

Julita Haber, Ph.D. is an associate clinical professor in the Leading People and Organizations area at the Gabelli School of Business at Fordham University. Her current teaching includes principles of management, innovation and resilience, operations, and foundations of consulting. Her research interests focus on organizational behavior and pedagogy. In particular, she studies impressions of competency and the adverse effects of the fear of appearing incompetent in the workplace. Julita also implements innovative pedagogical methods. She developed a fitness-integrated learning (FIL) approach that engages students in physical exercise when learning in class. Prior to academia, her career spanned 20 years of experience in IT and business, including management consulting at Deloitte and PwC.



Christiaan Maasdorp is a Senior Lecturer at the University of Stellenbosch, in South Africa, and study director of the postgraduate programs in Information and Knowledge Management. He lectures on Knowledge Management, Organization Theory, and the Information Society. His research interests are knowledge risk, conceptual aspects of knowledge management, and the role of knowledge and technology in organizations.



Towards assessing the role of persuasion principles and cybersecurity skills training on senior citizens' SMiShing susceptibility

[Research-in-Progress]

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Abstract

In recent years, senior citizens have fallen victim to phishing attacks and collectively lost many millions of dollars each year. One attack vector for committing phishing is SMiShing, where the attacker sends a Short Message Service (SMS) communication that often contains operationalized principles of persuasion to execute an attack. Prior research has shown persuasion principles can improve phishing attacks' success. However, it appears that limited research has been done regarding senior citizens' susceptibility to SMiShing and the use of persuasion principles. The main goal of this work-in-progress study is to empirically evaluate the influence of the five principles of persuasion on senior citizens' susceptibility to SMiShing attacks using simulated SMS messages that will be validated initially by Subject Matter Experts. Also, it will seek to empirically evaluate whether senior citizens' susceptibility to SMiShing is reduced after attending a novel hands-on Security, Education, Training, and Awareness (SETA) session. Data from the simulated SMiShing attack results and demographic information will then be compared. In conclusion, the novel SETA program may help reduce senior citizens' susceptibility to SMiShing and help secure senior citizens' accumulated wealth.

Keywords: Persuasion, SETA, seniors, decision-making, phishing, SMiShing.

Explainable AI for evaluating hospitalized patients' electronic health records data for chronic disease patients

[Research-in-Progress]

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Extended Abstract

Integrating Electronic Health Records (EHR) with machine learning (ML) models can boost healthcare delivery and patient outcomes. EHR integrated with ML models enables healthcare providers to leverage important medical information for patient risk assessment, personalized treatment plans, and early diagnosis. Previous research has shown that the use of EHR significantly improves clinical outcomes, such as achieving accurate differential diagnoses and reducing avoidable redundant admissions. This study integrates ML models with EHR on admission outcomes for chronic illness patients, demonstrating the practical application of predictive classification methods. Specifically, it incorporates SHapley Additive exPlanations (SHAP), an explainable AI method, to analyze extensive EHR data from a major Israeli Health Maintenance Organization (HMO). Over thirty thousand admissions with Diabetes and Acute myocardial infarction (AMI), were retrieved from an established Israeli EHR to produce the findings. We developed prediction models using the XGBoost and Neural Networks algorithms, incorporating a comprehensive set of predictors that included clinical and demographic data of the patients, as well as admission details such as the use of EHR screens and whether the visit occurred during a day shift. We examined three dependent variables: 30-day readmission, single-day admission and medium and long Length of Stay (LOS). We used SHapley Additive exPlanations (SHAP), an explainable AI method, to identify key features influencing our model's decisions at both the patient and model levels. SHAP provides detailed insights, enhancing physicians' understanding of the model's reasoning, building trust, and highlighting critical patient conditions.

The results indicate that readmission had higher prediction scores than other dependent variables for the principal diagnoses. To translate these findings into practical applications, we incorporated a recent explainable AI tool to identify key factors (e.g., age, Charlson comorbidity score, day shift, gender, use of EHR monitors, and type of insurance) affecting each diagnosis and outcome. We demonstrate how the value ranges of each feature contribute to positive or negative decisions. Our findings underscore the value of using machine learning to interpret and leverage medical EHR data for assessing risk factors. Our preliminary findings suggest that assessing probable factors that lead to adverse outcomes, in conjunction with an explainable AI method, can enhance prevention-oriented medical decisions tailored to individual patients and broader cohorts.

Keywords: Machine learning; Explainable AI; Readmissions; Diabetes; Acute myocardial infarction;

Usability of distributed ledger technology for integration into the internet of things: Analysis of consensus protocols

[Research-in-Progress]

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Extended Abstract

The Internet of Things (IoT) is characterized by a diverse network of devices that use various forms of communication and data types. Due to their distributed nature and the generation of large amounts of data, IoT nodes often encounter obstacles such as hardware and storage limitations, security vulnerabilities, and lack of interoperability. To deal with these challenges, researchers have suggested the integration of Distributed Ledger Technologies (DLTs) such as blockchain or Directed Acyclic Graph (DAG) (Farahani et al., 2019). However, DLTs differ in terms of the consensus protocols used. Each consensus algorithm has a unique set of characteristics, including different levels of scalability and security. Therefore, there is a need to develop a framework that defines categories for evaluating the use of different DLT consensus protocols for IoT applications.

To address this research gap, we conducted a comprehensive literature review to identify the characteristics of DLT consensus mechanisms that need to be considered when assessing the suitability of DLT for IoT applications. Using an open, axial, and selective coding approach, we classified the identified characteristics into seven categories and grouped them into three overarching core categories (network accessibility, scalability, and security) (Perscheid & Moormann, 2023). To determine the most appropriate consensus protocols, a second literature study was conducted, resulting in consensus protocols based on Proof of X, Byzantine Fault Tolerance, and DAGs. Ultimately, the evaluation of various consensus protocols should serve as a basis for informed decisions when selecting DLTs for specific IoT applications. We show this using the example of monitoring reforestation projects. This paper represents a first attempt to develop a framework for assessing the suitability of different DLTs for IoT applications.

Keywords: IoT, Distributed Ledger Technology (DLT), blockchain, consensus protocol.

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Differences in the use of password workarounds and the cybersecurity risks between experts and users

[Complete Research]

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Extended Abstract

Passwords have been used for a long time to grant controlled access to classified spaces, electronics, networks, and more. Despite being more aware of password entropy, users still often participate in deviant password behaviors, known as ‘password workarounds’ or ‘shadow security.’ This study engaged 303 Information Systems (IS) users and 27 Subject Matter Experts (SMEs), focused on designing, developing, and empirically validating the Password Workaround Cybersecurity Risk Taxonomy (PaWoCyRiT)—a model supported on perceived cybersecurity risks from Password Workarounds (PWWAs) techniques and their usage frequency. A panel of SMEs validated the PWWA list from existing literature with recommended adjustments. Additionally, the perception level of the cybersecurity risks of each technique was measured from the 27 SMEs and 303 IS users. They also provided their self-reported and reported on coworkers' engagement frequencies related to the PWWA list. Our results indicated that statistically significant differences were found between SMEs and IS users in their aggregated perceptions of cybersecurity risks of the PWWAs, with IS users perceiving higher risks. Engagement patterns varied between the groups, as well as factors like years of IS experience, gender, and job level had statistically significant differences among groups. The PaWoCyRiT was developed to provide insights into password-related cybersecurity risks and behaviors.

Keywords: Cybersecurity tasks efficiency, Artificial Intelligence (AI) for cybersecurity, cybersecurity workforce productivity, cybersecurity management.

An investigation on information security awareness: Collecting evidence from the public healthcare sector

[Complete Research]

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Extended Abstract

Information Security Awareness (ISA) mainly refers to the aspects that need to be addressed to effectively respond to information security challenges. This confirms the now widely recognized idea that technological solutions alone are no longer enough to overcome information security issues and that it is necessary a holistic approach involving organizational sciences. Healthcare is a critical domain where the organizational approach appears under-investigated. This research empirically investigates the main ISA dimensions that emerge from the Italian public healthcare sector via focus groups. Data analysis was conducted using the NVIVO 14 software package and followed the principles of thematic analysis. The aim is twofold. We aim to identify the most critical dimension of ISA. Furthermore, we wish to evaluate the diffusion and maturity of Information Security Policy (ISP) of healthcare infrastructure and training programs. It emerges from focus groups that healthcare personnel have a hard time complying with the main ISA dimensions so ending up in risky behaviors. Among the ISA's main dimensions, password management, data storage and transfer, and instant messaging applications emerge as the most critical in the context of this research. Coherently, it also emerges that ISPs are partial as they mainly focus on privacy issues but neglect the security ones. Finally, training programs are far from being fully implemented in the investigated context, thus undermining their positive enhancing role for ISA.

Keywords: information security awareness, healthcare sector, focus group.

The relevancy of knowledge management behaviors and organizational culture for workplace happiness: A study in Portuguese hospitals.

[Complete Research]

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Extended Abstract

Recognizing the significance of the individual's experience is crucial for the success of knowledge management (KM) initiatives within healthcare organizations (Meri, 2020). This acknowledgment suggests that KM related behaviors play a relevant role in enhancing the satisfaction and wellbeing of healthcare professionals (Karamitri et al., 2015). However, the complexities inherent to healthcare knowledge and its coexistence in a competitive *status quo*, defined by high interpersonal and interorganizational competition, might lead to negative behaviors and outcomes. The current research elucidates how a competitive organizational culture, in articulation with various KM behaviors (sharing, hoarding, and hiding), influence the promotion of workplace happiness in healthcare. The study follows a SEM analysis using data obtained from 253 healthcare professionals in Portuguese hospitals. Findings suggest a positive relationship between a competitive organizational culture with knowledge hoarding and knowledge hiding. However, it is noteworthy that a competitive organizational culture also positively influences the workplace happiness of healthcare professionals. Findings show that knowledge hoarding and knowledge sharing positively influence the workplace happiness of healthcare professionals, with no direct effect between knowledge hiding and the workplace happiness of healthcare professionals; acting as a negative mediator between the variables. This research underscores the pressing need to comprehend the behaviors that can shape and enhance the workplace happiness of healthcare professionals and sheds light on the influence and consequences of KM behaviors in healthcare. Managerial implications include identification of practices shaping knowledge behaviors in an understudied setting – that of healthcare organizations.

Keywords: Competitive culture, knowledge hiding, knowledge hoarding, knowledge sharing.

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Why do students lack motivation to perform code reviews?

[Research-in-Progress]

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Extended Abstract

Peer code review is a standard software practice used in the industry where developers inspect one another's code to identify defects and improve code quality. The code review process allows for early detection of errors during development, facilitates knowledge transfer, increases team cohesion, and decreases project costs. Code review in programming courses is dedicated to enhancing students' programming skills and serves as a collaborative learning method to improve students' social skills.

However, in practice, lecturers often encounter a lack of motivation and enthusiasm from students to participate in these tasks. The observed absence of students' motivation is supported by the results of several qualitative studies utilizing post-code review reflections gathered through interviews or free-text responses (Indriasari et al., 2023). There is an evident lack of literature investigating motivation for code review tasks using a validated questionnaire designed for this purpose. This mixed-methods research is dedicated to examining motivation components, including intrinsic and external motivation, and assessing how they are affected by the performance of code review tasks.

This research-in-progress is conducted as part of the web programming course. The code review assignment was mandatory and performed on one of the intermediate tasks of the final project. Quantitative data using motivation questionnaires (Mozgalina, 2015) from over 75% of all students (N=140) was collected before and after the participants completed the code review task. In addition, qualitative data was collected from the participants' reflections on the performed task. The students' perceptions extracted from qualitative data will be used to explain the quantitative data results. To the best of our knowledge, this study represents the first attempt to examine whether engaging in a code review task enhances motivation for participation in code reviews.

Keywords: Code review, motivation, questionnaire, students, undergraduate, web programming.

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Introduction to the European Digital Innovation Hub and its role in the knowledge transfer of digital technologies in the region of Brandenburg, Germany

[Research-in-Progress]

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Extended Abstract

The region of Brandenburg, in Germany's east, is a sparsely populated area with inhomogeneous economic development and undergoing considerable socio-economical change driven by phasing out of brown coal mining and power generation.

The European Digital Innovation Hub (EDIH) 'pro_digital' is co-funded by the DIGITAL Europe Programme and has embarked on the transfer of digital knowledge in order to accelerate both human-centric digital and green transformation of startups, Small and Medium-sized Enterprises (SMEs) and Public Sector Organizations (PSOs) within the region of Brandenburg.

In this program, dissemination and transfer of digital technologies know-how is based on four key pillars: (A) Test before invest e.g., conducting targeted hands-on seminars to showcase a wide range of digital technology demonstrators/solutions. (B) Training and skills development e.g., organizing upskilling and reskilling workshops for the regional workforce and fostering innovation by conducting innovation-camps for vocational training of the future innovators and technologists. (C) Support to find funding/investment opportunities e.g., giving consultation and advice on public/private funding opportunities on the local, regional and the EU level. (D) Networking and access to innovation ecosystems e.g., organizing topical brokerage events by inviting expertise and sharing best practices from the other EU regions. Through this methodological framework, 'pro_digital' enhances digital maturity and hence, competitiveness of SMEs in this region.

Keywords: EDIH pro_digital, Brandenburg, digital transformation, SMEs, PSOs, innovation management, knowledge transfer

Reference:

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A real options organizational strategy for sourcing work to artificial intelligence

[Research-in-Progress]

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Extended Abstract

Artificial Intelligence (AI) is a special form of Innovation. Whereas the technologies of the fourth industrial revolution automated well-structured work processes, generative AI applications are expected to perform unstructured tasks that were once the exclusive domain of human creativity. The purpose of this research-in-progress is to develop an organizational evolutionary model of sourcing work to AI. Drawing on strategic sourcing of innovation research, specifically, the global sourcing learning curve, the proposed model contains four evolutionary stages: 'Hype/Fear', 'Cost', 'Quality', and 'Strategy'. The current study investigates the first 'Hype/Fear' stage, suggesting a real options strategy for experimenting with generative AI applications. Due to the unique complex attributes of AI, the proposed model is based on a Human-Centered Artificial Intelligence (HCAI) approach, emphasizing responsible organizational governance of AI. A HCAI approach regards AI as an instrument for improving human performance (Shneiderman, 2020).

A real option is created when an organization invests in a capital project. The organization's management has the option to decide anytime in the future whether to increase the investment or take action to reduce losses. The ability to decide according to changing circumstances decreases risk and adds flexibility. Since investments in generative AI applications involve high levels of risk and uncertainty, a real options strategy may provide organizations with an effective means for exploring its value. We shall present seven types of real options (learning, timing, growth, staging, exit, flexibility, and operating) and demonstrate them within the context of sourcing work to generative AI while considering mechanisms for designing their reliability, safety, and trustworthiness. This research-in-progress proposes the initial stage of a novel conceptual roadmap for organizations that consider sourcing work to generative AI or designing an architecture of human and AI collaboration to empower human employees, as a means to enhance value creation.

Keywords: Sourcing work to Artificial Intelligence (AI), strategic sourcing of innovation, global sourcing learning curve, real options strategy, Human-Centered Artificial Intelligence (HCAI), responsible AI, organizational governance of AI.

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Developing and securing health information for research: EHR data in Puerto Rico into federated network of real-world data repository

[Research-in-Progress]

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Extended Abstract

Over the years, numerous initiatives have arisen to establish a secure institutional clinical data repository and interconnect them among organizations due to the necessity for both intra- and inter-institutional patient data in research endeavors (Palchuk, et al., 2023). There is a need in Puerto Rico (PR) to have a clinical data resource and to share this information with researchers around the world. TriNetX has created a virtual private cloud technology platform that supports the Federal Risk and Authorization Management Program, NIST 800-53, and other industry-standard security certifications characterized by a conservative security and governance model that facilitates collaboration and cooperation between industry participants, academic, and community-based healthcare organizations (Shahid, et al., 2021). The objective of this case study delves into the implementation challenges and understanding of developing a clinical data resource using EHR (electronic health record) data from multiple clinical facilities, how we can implement the necessary security to protect the privacy of the patient information, and to extract and transport that data into a global network as TriNetX. The data on this repository and this network are meant to be used by researchers working in healthcare and academic institutions. This kind of data warehouse will be the first developed and implemented in the US territory of PR.

Keywords: Security, privacy, EHR, bioinformatics, global network, data repository, clinical data.

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Beyond likes and shares: Understanding social media exhaustion in the digital era

[Complete Research]

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Extended Abstract

In the contemporary digital information age, the advent of social networks has introduced numerous advantages, such as the rapid dissemination of information. However, it has also brought certain challenges, prompting changes in user habits and behaviors. The evolution of social media has revolutionized the dynamics of communication, decision-making, socialization, learning, and entertainment. In the contemporary landscape, user-generated content proliferates, and the rapid, cost-free, and ubiquitous dissemination of information has become the norm. Given the pervasive role of social networks in the daily lives of individuals, it becomes crucial to delve into their impact on users. This study investigates various factors associated with social media use, including the frequency of usage, social comparison, privacy concerns, information-seeking skills, and information overload, aiming to understand their influence on social media exhaustion. Additionally, the research explores behaviors related to the sharing of fake news.

To collect the data an online survey by questionnaire was applied (n=320). The respondents represent Generation Z from Portugal. The results of path analysis highlight a robust connection between information overload and social media exhaustion, emphasizing the relevance of addressing this relationship for a comprehensive understanding of users' experiences in the digital realm. Recognizing the significance and prevalence of social networks in contemporary society, this study contributes to the understanding of their multifaceted effects on users.

Keywords: Social media exhaustion, fake news, information overload, social comparison.

Students' readiness to adopt GenAI in their learning and ethical considerations – An international comparative study

[Research-in-Progress]

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Extended Abstract

With Generative Artificial Intelligence (GenAI) poised for significant growth in higher education, it's crucial to equip students with the skills to use it effectively. This raises questions and issues about its integration into academic and professional endeavors. This study aims to empirically assess students' current attitudes towards integrating GenAI technologies and the ethical challenges they pose in academic settings. Through cross-national and interdisciplinary comparisons, it seeks to offer a comprehensive understanding of GenAI in Higher Education (HE). This study is grounded in activity theory, a psychological framework by Lev Vygotsky (Roth & Lee, 2007), which examines how individuals interact with their socio-cultural environments. The online survey targets students from HE institutions in the UK, Poland, Germany, and Israel, representing diverse geographical and educational backgrounds. It comprises four categories with a total of 30 questions as well as a socio-demographics part comprising of 12 questions. Each country will report a minimum of 100 responses. The survey assessed four specific areas of interest: current use and understanding of GenAI, training in GenAI, future use of GenAI in education and ethical considerations. Furthermore, it investigated how background characteristics and AI interest can explain students' readiness and ethical considerations in adopting GenAI. This research adds to the current debate by exploring cultural differences to understand current GenAI usage in Higher Education. It sheds light on nuanced perspectives regarding GenAI integration in HE, enriching the global discussion on knowledge management in academia.

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Exploring customer satisfaction in automated service processes: An empirical investigation of chatbot features using the Kano model

[Complete Research]

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Extended Abstract

In today's digital age, due to a surprisingly fast development in generative artificial intelligence, chatbots are becoming increasingly important as automated dialog systems for improving customer service.

This study examines the role of chatbots in customer service and analyzes their effects on customer satisfaction. Therefore, the Kano model is used, which offers a method for analyzing and prioritizing features of a product by assessing their potential to satisfy customers. Thus, one can evaluate the balance between the satisfaction a feature would bring and the costs associated with its implementation, helping to decide whether incorporating it is beneficial.

The primary part of the study is an empirical survey wherein participants were introduced to two distinct varieties of chatbots that represent the helpdesk of an imaginary airline. The first virtual assistant does not use personalization, while the other is responsive to the user and communicates with emojis in an open manner. A group of 36 participants took part in the survey and watched a movie clip showing a dialog between a customer and the chatbot. Thus, without interaction, it could be guaranteed that all participants would rate the same behaviour. The participants were then asked to rate the chatbots based on the specified characteristics that were gained from a pretest and interviews. Afterward, the results were evaluated according to the given methods from the Kano model and statistically analyzed. The outcome provides interesting insights about designing a chatbot and the corresponding interaction strategy.

The most important result of the study is that speed, i.e. a short reaction time, is particularly important. Another characteristic that has a positive influence on satisfaction is helpfulness. The integration of videos is also well received by customers. What is interesting is the quality of interpersonal relationships, which were rated in the literature and in interviews as very important and trust-creating. Despite this, it can be shown that this characteristic is considered indifferent and has no impact on customer satisfaction. Another surprising result was that there were no significant differences in ratings in a direct comparison between an emotional and a non-emotional chatbot. Both virtual assistants were rated equally satisfactory in the test.

Keywords: Chatbot, empirical study, customer satisfaction, generative AI, survey.

Why academics should embrace reverse mentoring?

[Research-in-Progress]

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Extended Abstract

In the past decade, various studies analyzed how corporations use reverse mentoring for influencing positive work environment, engagement, leadership, and performance (Becton, Walker, & Jones-Farmer, 2019; Huang & Knight, 2019). Reverse mentoring can be defined when a senior leader is mentored by a younger or more junior employee. The relative lack of reverse mentoring in academia may reflect a historically hierarchical, top-down learning model. However, with the increasing proliferation of information, professors will be wise to engage students more actively in course design and development in order to connect and communicate the course concepts most effectively.

Thus, we designed an exploratory quantitative study of reverse mentoring to improve teaching effectiveness of college professors. This is done through a liaison, a reverse mentor, a former student of the professor who is familiar with the coursework and teaching style. The reverse mentor engages in several feedback-related tasks such as: soliciting feedback from other students via email or in person and using class time to run a quantitative and qualitative survey. The feedback centers around two parameters: course content and teaching style—assessing student engagement levels, learning preferences, strengths and weaknesses for improvement in faculty teaching.

We hypothesize that the outcome of the study will have many implications in academia. For the faculty, the program will identify ways to improve pedagogical effectiveness. For the reverse mentors, it will improve their engagement and interpersonal skills with the mentee. Faculty receptiveness to feedforward will entice students to engage in more transparent conversations about their learning. We also hope to find more indirect effects of reverse mentoring on creating a culture of transparency and constructive feedback between faculty and students.

Keywords: Reverse mentoring, student feedback, teaching effectiveness, academia.

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Here be monsters: Media-based games for diversity in cybersecurity talent development

[Research-in-Progress]

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Extended Abstract

Women and underrepresented minorities have not been attracted to cybersecurity programs resulting in a lack of diversity in the potential workforce. Learning options that reduce cultural bias are more welcoming to underrepresented groups. A less traditional approach uses analogies that are more universally recognized across multiple cultures such as stories. One of the richest sources is the media, and particularly fictional characters. This research used media-based games to teach a multi-cultural, multi-racial, and gender-diverse population of cybersecurity novices in Warsaw, Poland during the Covid-19 pandemic and the onset of the Russia-Ukraine war. That same population of 18 participants that learned the concepts also designed their own media-based game to communicate those concepts, and played the game. Their attitudes were measured post-gameplay. The preliminary results indicate a predominately positive attitude towards games for cybersecurity education. Cybersecurity novices successfully created CTF challenges in an adaptable game framework indicating a high level of usability and of concept comprehension. Teamwork and content-creation autonomy were examined as factors contributing to enjoyment and a positive attitude. A positive attitude towards cybersecurity in turn attracts talent.

Keywords: Cybersecurity, m-Learning, Playfulness, Usability, Diversity, Gamification.

Prototype design of securing the internet of things in smart homes

[Research-in-Progress]

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Extended Abstract

The Internet of Things (IoT) technology has revolutionized how businesses operate and changed our daily lives. IoT devices are used in different areas, including smart cities, smart agriculture, smart healthcare, and smart homes. The number of IoT devices connected worldwide continues to rise, and 75 billion devices are expected to be connected by 2025. Even though IoT devices are rapidly spreading, they come with security and privacy challenges. IoT devices have resource constraints due to limited memory, computational capacity, and power. The constraints make it hard for traditional security mechanisms like firewalls and antivirus software to detect and protect IoT devices against attacks and compromises adequately. To that end, conventional methods for securing against cyber-attacks are inefficient and inadequate for securing IoT devices. This project aims to design and implement a secure hub ecosystem prototype with an intrusion detection system (IDS), including ML, to defend IoT devices in a smart home. After the literature about the security of IoT devices in smart homes has been analyzed to identify current challenges and limitations, a secure IoT hub ecosystem prototype will be implemented. Benign data and malicious data will be generated in the IoT testbed. The IoT devices in the testbed will monitor activities such as door and motion sensors from the opening and closing doors, cameras detecting movement, the lights being turned on and off, and the home appliances being turned on. Data will be collected from the IoT smart home testbed and implemented using a supervised intrusion detection system (IDS) with machine learning (ML). The data will be analyzed to reveal the effectiveness of an IDS with ML in securing an IoT-based network. The results will help recommend ML classifiers to use with IDS in securing the IoT ecosystem. The results can be applied not just in smart homes but in all implementations of IoT devices.

Keywords: Internet of Things (IoT), smart home, machine learning, intrusion detection systems, cyber-attacks.

Empirical research on knowledge integration: An overview of the knowledge management field

[Complete Research]

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Extended Abstract

Of the knowledge processes of interest for knowledge management, knowledge integration is studied less than knowledge sharing, creation, and codification. The reason is perhaps that the definition of knowledge integration is contested and the boundary between it and other constructs is blurred. It can be seen as the final step in knowledge sharing or as the combination of complementary knowledge content or of specialized expertise from distinct disciplines. Furthermore, integration recurs on multiple organizational levels from team to inter-organizational, which poses a level of analysis problem for empirical research.

This article reviews empirical research on knowledge integration over the past five years. A preliminary search in the SCOPUS database for the keyword “knowledge integration” was conducted resulting in 105 articles for analysis, after the exclusion of articles that were not empirical, that did not have knowledge integration as a variable, or that were published more than five years ago. These articles were coded according to the level of analysis, whether knowledge integration is seen as an instance of sharing, processing, or learning, and the scale used to measure knowledge integration was labeled.

The results show that integration is mostly studied at the organizational level (more than combined studies at the individual and team level combined). Researchers largely think of knowledge integration as an instance of learning ahead of sharing and processing. Also, there is no agreement on how to measure knowledge integration, because 73 different scales were used in the 105 studies. The lack of multilevel analysis represents an opportunity for future research. Finally, a better delineation of the difference between integration and sharing could improve empirical research on this phenomenon.

Keywords: Knowledge integration, knowledge management research, knowledge processes, systematic literature review.

Relational capital and green innovation: The role of external knowledge in the innovation process

[Complete Research]

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Extended Abstract

Green innovation is defined as a process, product, or service innovation of a radical and incremental nature that mitigates the negative impact of a company on the environment. Natural environment degradation and stakeholder pressure make it necessary to develop green innovations. Creating and commercializing green innovations often requires resources (including knowledge) that the company does not have. To overcome this limitation, companies set broad collaboration networks and implement formal and informal mechanisms e.g. shared practices, resource and technology transfer, work teams, communication systems, joint R&D, etc. Prior studies show that collaborating with partners to acquire external knowledge positively impacts the pursuit of green innovation. However, success in acquiring external knowledge depends highly on the company's ability to develop relationships with partners based on mutual trust, commitment, goals, and benefits, which is called the relational capital of a company. Unfortunately, the role of relational capital in green innovation is still under-researched. Thus, the study aims to explore the relationship between relational capital and green innovation.

The study follows the quantitative approach using of questionnaire to collect data. The final sample consists of 259 respondents representing large innovative companies operating in Poland that introduced at least one innovation (product or process) during the last 3 years. The validated scale to measure relational capital and green innovation was taken from previous studies. It was a seven-point Likert scale describing practices referring to relational capital and green innovation.

The empirical results show that companies from the research sample are characterized by a high level of relational capital. The level of implementation of green innovations is also moderate to high. Moreover, there is a statistically significant relationship between relational capital and green innovation (Pearson's coefficient =0,570; p value<0,001). Companies need to develop relational capital to create collaborative networks and acquire external knowledge to achieve green innovation. Green innovation is more complex and susceptible to resource constraints than other types of innovations. Therefore, an important success factor is stable relationships with external partners. Additionally, the positive impact of relational capital on green innovation may be embedded in the growing environmental awareness of managers.

Findings from this study support previous arguments about the high role of external knowledge in the innovation process. It contributes to innovation studies by exploring the important area of green innovation. This study has limitations like focusing only on large companies and one country. However, it provides a good starting point for further research covering larger samples, longitudinal studies, and cross-country comparisons.

Keywords: External knowledge, relational capital, green innovation.

Attitudes towards artificial intelligence as a potential diagnostic tool in dermatological settings

[Research-in-Progress]

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Extended Abstract

Artificial Intelligence (AI) has been a growing area of research, especially regarding its utility in the medical field. Specifically, there has been an expanding sphere of dermatology-based applications and AI tools used to assist in analyzing skin lesions, such as potential melanomas, as well as providing recommendations for treatment. A simple search for AI dermatologist apps for Apple and Android based devices returns many search results such as “AI Skin Scanner: Scan and Analyze”. Physicians can upload an image of a skin lesion and receive an analysis for a potential condition and recommendations for actions, such as additional lab explorations and treatment approaches. Dermatology AI tools have also been useful in remote consultations to provide early assessments and recommendations.

Recent studies analyzing the efficacy of deep learning AI and convolutional neural networks have shown remarkable accuracy in diagnosing malignant versus benign melanomas and classifying basal cell carcinomas, amongst other things. While such AI tools may potentially support the work of dermatologists, this study seeks to explore dermatologists’ perceptions of data accuracy, trust, and efficiency of the AI tool. We will also highlight the various methodologies used to process the dermatology images and explain a deep learning model that is used to recognize and classify the skin lesions. The use of dermatology AI tools can enhance the work of the dermatologists, particularly in helping to differentiate between various skin conditions that present during remote patient consultations. The methodology used in this study will be electronic surveys. Analysis of the results will be provided. Practical recommendations will be suggested. While generative AI dermatology tools are still evolving and being tested, they will continue to enhance and benefit the work of dermatologists. This study aims to explore the attitudes of dermatologists and provide additional knowledge about how such AI tools categorize and differentiate images.

Keywords: Dermatology AI generative tools, data accuracy, trust, efficiency, remote consultation

Current state of Artificial Intelligence (AI) integration to improve technical and managerial cybersecurity tasks' efficiency

[Complete Research]

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Extended Abstract

Artificial Intelligence (AI) can assist in the cybersecurity workforce worldwide shortage in technical and managerial roles. We conducted an exploratory field study to assess the current state of AI tools in providing or improving cybersecurity task efficacy. By automating many of the routine tasks associated with cybersecurity, AI enables cybersecurity personnel to reduce their workloads and focus on more strategic aspects of their work. Following an initial literature review, we identified the specific core tasks for two examples of cybersecurity work roles, Cyber Defense Analyst (OPM ID: 722; NICE ID: OV-MGT-001), a technical role, and Information Systems Security Manager (OPM ID: 722; NICE ID: OV-MGT-001), a managerial role, which differ in the types of tasks they perform. Following this, we searched for specific commercial tools to perform each task. In order to do that, we prompted the free version of ChatGPT to provide responses to the specific commercial vendors, platforms, or tools that use AI to conduct each core task within the work role. The results of our exploratory field study indicated that all 14 cybersecurity tasks of the technical work role are currently noted to be performed by at least seven commercial cybersecurity systems with AI-integrated capabilities each. In contrast, only 11 of the 17 managerial work role tasks have current AI tools that can perform these tasks in commercial cybersecurity systems, each with several AI tools. For the other six managerial tasks, we have not found any evidence of proper AI tools that can assist in performing these tasks. We predict that the rapid evolution of AI tools, especially those based on Generative Pre-trained Transformers (GPTs), will simplify the tasks of managerial roles, too. AI tools will offer the opportunity to relieve humans from tedious, repetitive, or mentally demanding tasks, allowing them to focus more on strategic thinking, making decisions faster, implementing plans, and managing cybersecurity. Consequently, professionals can boost their productivity, accomplishing current tasks more accurately and also taking on additional responsibilities.

Keywords: Cybersecurity tasks efficiency, Artificial Intelligence (AI) for cybersecurity, cybersecurity workforce productivity, cybersecurity management.

Knowledge transfer and innovation in the German administration

[Research-in-Progress]

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Extended Abstract

The ability to innovate determines the sustainability of organizations. In a public administration, innovation constitutes a break with routine processes and hierarchies, which requires a culture open to new things and experiments, including trial and error as steps on the way to a solution. Typical hurdles of innovation and transfer in administrations are given by the prevailing mindset of decision makers and employees (associated with fear of unknown, failure, or risk) but e.g. also by the lack of political will, employee empowerment, subject skills, technical resources, or a missing added value for the individual. The contribution illustrates a current innovation process in a regional transfer ecosystem of science, business, society, politics and administration by discussing selected aspects of the political motivation and strategy, the utilized research methods, agile steps, and the practical knowledge transfer. In 2023, the Saxon Institute of Administration Innovation in Meissen (German acronym: SIVIM) was founded, to stimulate administrative innovation in the State of Saxony and its municipalities. In parallel, the cooperative project “4transfer” of three academic and one cultural institutions has been established, funded by the German Federal Ministry of Education and Research in the scheme “Innovative University”. As a novelty, 4transfer follows a Quadruple Helix Model of Innovation and includes administration from the beginning. The project from 2023 to 2027 involves ca. 30, mainly scientific, staff from the four partners, who build up transfer formats like e.g. living lab, public participation, learning journey or pop-up science in science, business, society, politics and administration. The interim results of the first 18 months in cooperation with departments from Saxon state government and municipalities are discussed. In addition, the internal transfer at HSF including its administration and the development of the future staff are critically reflected. As a first conclusion, the transfer formats are well received by all target groups. Many participants from administrations are aware of the necessary transformation and innovation. However, during concrete actions, e.g. process optimizations, some stereotypes in administration, like fear of failure or risk, are confirmed.

Keywords: Innovation, transfer, public sector, living lab, public participation, agility

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Coopetition for exploration and exploitation innovation strategy. Evidence from large, innovative firms in Poland

[Complete Research]

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Extended Abstract

Exploration and exploitation innovations (E&E) together with coopetition have been highly researched topics worldwide (Corbo et al., 2023). Coopetition that involves the simultaneous pursuit of cooperation and competition (Gnyawali & Charleton, 2018) brings numerous positive effects in terms of innovation, but also hazards of unintended knowledge transfer and spillovers (Dziurski, 2020). However, previous studies provide ambiguous answers to the question how coopetition impacts E&E innovation strategies showing that it may either promote, inhibit or be neutral. Therefore, this research aims to investigate the relationship between coopetition and E&E innovation strategies.

This is a quantitative study that targets respondents who are knowledgeable about firm's innovation activities from large and innovative entities in Poland. In total, 259 questionnaires were collected from 7th to 16th November 2023. The research sample consists of manufacturing (41.3%) and service firms (58.7%); more than half of firms studied have been on the market for over 26 years (55.6%), while 44.4% are younger firms. Coopetition is an independent variable, while exploration and exploitation innovation strategies are dependent variables. We also used three control variables: (1) firm age in years since establishment, (2) type – manufacturing and service firms and (3) size measured by numbers of employees. All scales applied in the study have a good reliability and they passed the construct and discriminant validity tests. Moreover, the common method bias is in control.

The correlation analysis shows the positive and significant correlation between coopetition and E&E innovation strategies. Moreover, the regression analysis shows that coopetition positively impacts exploration and exploitation innovation strategies. It also indicates that coopetition is more likely to result in exploration than exploitation innovation strategy.

Keywords: Coopetition, exploratory innovation strategy, exploitative innovation strategy, innovative firms.

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Identification of the reasons for the lack of cooperation between enterprises and R&D units

[Complete Research]

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Extended Abstract

Cooperation is defined as “a interactions that are key to creating and bringing to market innovative products and services” (Adamik & Szymańska, 2020, pp. 104-105). Identifying the reasons for the lack of cooperation between small and medium-sized enterprises and research and development units is a highly relevant topic. The present study was carried out for the purpose of writing a doctoral thesis and focused on the cooperation of small and medium-sized enterprises with R&D units using the example of polytechnics. Identifying the reasons why small and medium-sized enterprises do not cooperate with research and development units was an interesting part of the study.

The sample consists of 250 small and medium-sized enterprises randomly selected within the 5 selected provinces in Poland (40% of the surveyed enterprises are from the scientific and professional sector and 35% from the industrial sector). The uses the CATI method, and it was carried out in 2020 on two samples of 125 units each: those cooperating with a polytechnic between 2018 and 2020 and those not cooperating with a polytechnic at the same time. The survey looked at 14 forms of cooperation. The survey was carried out on the sample of 5 polytechnics classified as R&D units.

The results indicate that for both research samples, the main factor limiting collaboration is the lack of financial resources to undertake collaboration (77% for enterprises cooperating with a polytechnics, and 59.2% for enterprises not cooperating with a polytechnics at the same time). An interesting result of the survey, however, was that it was often women managers of both small and medium-sized enterprises who identified many barriers to collaboration, such as the lack of research centres in the region (70%) and the high degree of bureaucracy (67%).

The study confirms that one of the main reasons for not collaborating with a polytechnic so far is the lack of need for such collaboration (79% of non-cooperating enterprises) and 56% cite the lack of common areas of action. In addition, for 70%, lack of resources is the main barrier to collaboration for non-cooperating enterprises.

Keywords: knowledge management, SME, higher education, management, knowledge sharing.

Reference:

Adamik A. & Szymańska K. (2020). The technological entrepreneurship capacity and partnering as elements of an open culture of small and medium-sized enterprises: Case study of Poland. *Eurasian Studies in Business and Economics*.

Assessing cardiologists' user experience with electronic medical records and generative artificial intelligence visualization

[Research-in-Progress]

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Extended Abstract

Cardiovascular Diseases (CVDs) are a leading cause of death worldwide, accounting for 17.3 million deaths per year. Artificial intelligence (AI) has gained prominence in recent years, and there is a significant interest in exploring how artificial intelligence can improve patient outcomes and decrease hospitalization rates. This study will identify the most critical values that cardiologists consider when evaluating electronic medical records (EMR), including factors such as medical history, diagnostic results, and current medications. Additionally, the study explores cardiologists' attitudes towards the integration of AI-generated imagery based on these critical values to enhance the efficiency and quality of patient care, providing more insight in the use of AI in improving EMR usability.

A survey will be distributed to certified cardiologists to measure the important components of EMR User Experience, EMR User Experience Service Quality, Critical Cardiology Value Objectives, Cognitive Value, Attitudes towards AI-Generated Imagery and Demographics. The survey items will be adopted from peer-reviewed literature. We anticipate the survey results to reflect the reliability of information in the EMR, convenience and ease of use of EMR, pertinent patient chart information such images and lab results as important components to cardiologists. The survey results will then be used to create AI-generated imagery to be reevaluated by cardiologists in an additional survey that measures cardiologists' experience with the AI generated imagery.

The findings of this study will provide insights into the key factors that cardiologists prioritize when using EMRs in the care of their patients, which can inform the development of more targeted and efficient diagnostic tools. Furthermore, the study will gauge the readiness of cardiology professionals to embrace AI technologies that could revolutionize patient record management and decision-making processes in cardiac care.

Keywords: Electronic medical records, artificial intelligence imagery, cardiology, user experience.

Digital transformation as a response to coronavirus pandemic – Confronting conventional perception with the Content Analysis method

[Research-in-Progress]

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Extended Abstract

This study was designed to deepen the understanding of digital transformation of enterprises with a particular focus on the impact of the coronavirus epidemic. The Content Analysis method was applied. According to the collected data, the pandemic has not affected significantly the digital transformation of enterprises. The pandemic led to a number of legal restrictions affecting the ability of businesses to operate. Particularly severe restrictions involved lockdowns, which forced companies to make greater use of digital technologies. Conventional perception is that these have contributed significantly to the digital transformation of businesses. This study confronted the idea, which is important for knowledge management, as a way to understand sources of adoption of digital technologies in companies in general.

This study used a method of Content Analysis of annual reports published by listed companies. Large companies are obligated to publish a summarized description of their business models, and key non-financial information. In general, the Content Analysis method is used to systematize the information contained in many documents (Saldaña, 2014). A sample of 12 banks and 12 apparel companies listed on Warsaw Stock Exchange were examined. A purposive sampling approach was used to select companies with a high degree of diversity. The analysis was conducted on annual reports from five years of: 2017, 2018, 2019, 2020 and 2021, which were the years preceding the pandemic and the first two years of the pandemic. To evaluate the digital transformation process with the Content Analysis method a dictionary of 248 keywords was created. The keywords were chosen based on a review of literature on digital transformation. The list was refined in an iterative process of verifying the keywords' presence (or a lack of) in annual reports. For analysis, MAXQDA software was used.

The results identified that the pandemic has not affected the pace of digital transformation in enterprises. In 2020, frequency of keywords associated with the digital transformation increased at a similar pace as in a pre-pandemic year of 2019. Also, in 2021 the frequency remained at the same level. These results, however, are biased by a limited time of analysis.

Keywords: Digital transformation, pandemic, covid, polish companies.

Reference:

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Collaborative defense in cybersecurity – Worst practices

[Complete Research]

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Extended Abstract

In the face of globalization, security in cyberspace has become a critical risk management priority regardless the type of ownership. Any serious disruption to the operation of cyberspace affects citizens', security of private businesses and the efficiency of public sector institutions. Therefore, it has become necessary to implement legal solutions to protect the information resources. Fighting security threats with only a local view is inherently difficult, and likely ineffective. The objective of this work is to give an overview of collaborative cyberdefense implemented worldwide, along with some related serious cybersecurity incidents which evaded the defenses. We postulate that cybersecurity has become a tool of the new cyber cold war. National security level security incident management involves a chain of collaboration among individual citizens, businesses organizations and regulators within a country, region, or continent.

Countries have been self-aggregated into three groups based on their cybersecurity values and responses: I) countries subscribing to Western democratic values; II) the BRICS (Brazil, Russia, India, China, South Africa) countries and their allies; III) the remaining countries which are typically either excluded or profess to be non-aligned. Our recommendations are as follows: all countries should be collaborating via CERTs within their own countries and worldwide as encrypted within the status of CERTs. This may be facilitated by the UN, ITU, etc. CERTs often have a national security aspect, especially countries with an advanced military branch. This makes it function suboptimally. Group I is non-uniform and has further subgroups (EU, NATO or Five-Eyes). Group II is also non-uniform (sometimes competing, e.g. India and China) and further subdivided. Group III needs goodwill and openness, and is therefore “out in the cold.” Global cyber defense yields a magnitude of problems that we are only now facing up to – likely calling for much more extensive cyber diplomacy.

Keywords: Cybersecurity, collaboration defense, cybersecurity response, cybersecurity incidents, security level, cyber defence.

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The impact of Petya'2017 cyberattack on business continuity

[Complete Research]

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Extended Abstract

On the afternoon of June 27, 2017, one of the largest global ransomware virus attacks NotPetya (called as: Petya'2017, SortofPetya, ExPetr, Nyetya, Diskcoder.C, PetrWrap) took place, which began by infecting the Ukrainian accounting software M.E.Doc (Greenberg, 2018). The malware spread through updates to the software, infecting computers and networks in Ukraine and then around the world. The effects of the NotPetya attack were estimated to be as high as \$10 billion in total losses (Sandeep & Vignesh 2023; Greenberg, 2018). Many international companies such as Maersk, Merck, Saint-Gobain, TNT Express, Ukrtelekom, Rosneft, Raben Group, Inter Cars, Mondelez DLA Piper, Reckitt Benckiser were effected by experiencing serious disruptions in business continuity, resulting both in financial and operational losses.

The aim of the article is to present the necessity of readiness and resilience of organizations to cyberattacks, using the example of one of the most harmful and costly incidents in the history of cybersecurity, Petya'2017. The case study of Petya serves as a learning tool by presenting consequences of negligence in IT security calling for reinforcement of cybersecurity mitigations.

From the point of view of business continuity, the key conclusions drawn from the analysis of the NotPetya attack were developed which are amongst the others the need to increase global cooperation in the fight against cyber threats, like information sharing. Moreover, setting up a cybersecurity crisis management team with constant auditing and testing the implemented business continuity management plan should be a must.

Keywords: Cybersecurity attack, business continuity, NotPetya.

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Exploring employees' accountability in knowledge management systems enhanced by generative artificial intelligence

[Research-in-Progress]

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Extended Abstract

The study aims to understand the attitudes of managers at companies toward employee accountability for decisions based on data obtained from knowledge management systems based on Generative Artificial Intelligence (GenAI). It focuses on identifying potential procedures and regulations to minimize risks arising from erroneously transmitted or processed data.

GenAI-based technology is developing rapidly, and more and more companies are paying attention to its capabilities and potential areas of application, including knowledge management. Despite the many opportunities, the technology poses a number of challenges for organizations, one of which is the issue of employee accountability for making decisions based on data obtained from knowledge management systems that use support or rely entirely on GenAI. Therefore, there is a need to understand how modern knowledge management systems may affect decision-making processes in companies, and how to deal with emerging challenges in this regard.

The relevance of the topic stems from addressing fundamental issues related to the use of modern technologies in business management. The study of accountability for decisions based on data generated by generative artificial intelligence is crucial to the practice of knowledge management.

The research uses mixed methods. The first phase involves collecting qualitative data from senior managers to identify their perspective on the accountability of employees for decisions based on data generated by artificial intelligence and proposing possible procedures to minimize the risk of making decisions based on faulty data. Also discussed are the issues of data verification and regulations specifying the conditions or methods of using knowledge management systems based on GenAI. Then, through a survey of various levels of managers, quantitative data is collected to better understand perceptions of the issue in more broadly context.

This research will provide a better understanding of different perspectives, the challenges associated with the implementation and use of GenAI in companies in KM area. It can also provide an opportunity to identify best practices and develop appropriate regulatory and ethical frameworks, which can contribute to the effective and safe use of artificial intelligence in knowledge management. The study can serve as a starting point for a deeper understanding of the mechanisms affecting decision-making in companies using GenAI. In addition, it may also spur the development of further research on the ethical and social implications of using GenAI in KM, which could lead to a more holistic approach to using the technology in business practice.

Keywords: Generative AI, knowledge management systems, decision making, accountability, responsibility.

Women in management and knowledge sharing perspective. The case of Poland

[Research-in-Progress]

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Extended Abstract

Companies have always been founded on knowledge and its transfer. The SECI model of Nonaka (socialization, externalization, combination, and internalization) remains the major framework in knowledge management theories. Many studies confirmed the link between knowledge and competitive advantage. The areas of emphasis in knowledge-sharing research include organizational context, interpersonal and team characteristics, cultural characteristics, individual characteristics, and motivational factors. Only a few studies have investigated how the minority status or diversity of team members relates to knowledge sharing. Based on the similarity-attraction paradigm, it was shown that team members who consider themselves a minority based on gender, marital status, or education were less likely to share knowledge with team members. Knowledge sharing may also be embedded in the ties among individuals within social networks. Moreover, the results of the study have shown that individuals may share knowledge because they enjoy helping others (or altruism) or as a result of reciprocation (not sharing but trading).

Researchers have suggested that employees' personal characteristics and demographic characteristics may also influence with whom knowledge is shared and how individuals interpret and respond to situational factors. Moreover, prior research found that women are more sensitive to social interaction culture when assessing an organization's knowledge-sharing culture. The role and influence of gender in knowledge-sharing behaviors remains an underexplored area of research, especially for women who have achieved success in traditionally male-dominated fields. Planned research aims to contribute to understanding how in-group/out-group membership (the minority group status) influences knowledge sharing. The Queen bee syndrome will be discussed. The results of the study would contribute to decision-making and policy formulation aimed at increasing focus on the role of individuals (an individual-centric approach) in designing and implementing knowledge management in organizations.

The research will be carried out on a group of managers - postgraduate students in the field of moto and HRBP.

Keywords Knowledge sharing, knowledge management, social network ties, gender perspective.

Knowledge sharing transition at an international medical outreach program's field clinics

[Research-in-Progress]

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Extended Abstract

A prominent medical school in the Southeast United States conducts an active International Medical Outreach Program (IMOP) at multiple international locations. These medical outreach trips provide medical services to those who do not have access or limited access to health care. Medical students who volunteer to participate in these trips welcome the experiential education experiences. This case study focuses on a recent IMOP trip to San Cristóbal, Galápagos Islands (Ecuador). Traditional approaches in the dissemination of clinical knowledge, skills, and confidence building for medical students rely on classroom training. In the IMOP experience, knowledge sharing was supported by oral communication with senior clinicians and patients as well as a review of paper-based patient records. Paper-based record systems are cluttered with issues, some include illegible handwriting and missing or incomplete data. A team of health informatics professionals from the university transitioned the paper-based forms to a digitalized medical record format. The new digitalized system cleaned up many of the paper-based issues and had a welcomed impact which greatly improved knowledge dissemination among medical students, patients, and clinicians, furthering skills enhancement as well as efficiencies in resource coordination. This digitalized medical record system enabled a more efficient transfer of knowledge to medical students.

Keywords: Field clinic, International Medical Outreach Program, knowledge sharing, skills transfer, digital electronic record system.

Experiments with a living lab in the public administration

[Research-in-Progress]

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Extended Abstract

In the “4transfer” joint project, partners from science, business, administration and society work on innovative ideas and processes. The aim is to generate interdisciplinary research approaches and solutions through knowledge and technology transfer between the different sectors. Living-lab concepts create a protected area for testing new services or types of connection structures. They are primarily concerned with the development of innovations and can be seen as collaborative platforms. Furthermore, living labs are increasingly being used in public administration where the growing digitalization of administration shows a big potential to redesign and transform existing services. The findings enable further experiments in protected environments with a variety of solutions that can be gradually implemented on a larger scale. Both terms, “living lab” and “regulatory sandbox”, are often used interchangeably; their content and processes are similar. When running living labs, comparatively more human resources are required to function. The authors therefore prefer this term at the current stage of research. The regulatory sandbox, on the other hand, is most common a technical environment where facilities can test new technologies or business models with real citizens or customers under regulatory supervision and with some regulatory leeway. It constitutes a test bed for innovative services or products. Based on initial literature reviews and workshops that showed a lack of concrete steps, the authors created a decided practical guide for a preparation and planning, implementation and follow-up knowledge management of living labs. This step-by-step guide is based on specific questions which can be worked through in form of a checklist with the four main aspects: preparation & planning, legal aspects, threshold questions, and design & implementation. In parallel, some corresponding workshops have been held with participants from Saxon authorities, including ministries and representatives from various district offices. A general openness and acceptance for the methodical approach was observed among the participants. The results, based on the guided procedure, shall serve for the creation of further agile exchange formats and pave way for a low-threshold transition into everyday administrative life. The authors present selected examples from their living-lab approach, a simulation game and participant feedbacks. The initial research examples are limited to process representations and optimizations within and between Saxon authorities.

Keywords: Living lab, interdisciplinary, transfer, public administration, step-by-step guide.

Reference:

4transfer. (2023). Joint innovation project, mission, and partners. www.4transfer-innovation.de/

Exploring the influence of customer knowledge on the development of sustainable innovation

[Research-in-Progress]

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Extended Abstract

In recent years there has been a visible trend of growing interest in the issue of sustainable development, CSR and the idea of responsible management. The development of sustainable innovations fits fully into these topics. The sustainable innovation concept is both a process and an outcome of innovation activities that increase all three sustainability dimensions: economic, environmental, and social. In this study is drawing attention to the importance of customer knowledge in the processes of creating and developing sustainable innovations.

More and more companies began to notice the importance of customers in innovations processes not as “value consumers”, but as its “co-creators”. Thus, access to customer knowledge and integrating it with the company’s internal knowledge is an important incentive to create new solutions. This process becomes particularly important in the context of sustainable innovations, which consider environmental, social, and economic aspects to an equal extent. The implementation of the idea of sustainable development into economic life has also resulted in changes in consumer attitudes and expectations. In the study, the potential of customer-related knowledge will be analyzed through the prism of knowledge about the customer, knowledge for the customer, knowledge from the customer and knowledge co-created with the customer. Moreover, the study considered it important to know the quantitative and qualitative demand for information from customers and the ways of organizing and analyzing it. The research also involves identifying the level of use of customer-related knowledge in the process of creating sustainable innovations from the stage of idea creation to its commercialization.

The purpose of this study is to identify emerging relationships between knowledge processes related to acquiring and using customer knowledge to create and develop sustainable innovations. A qualitative method will be used to conduct the study. The research problems were formulated in five questions: 1/ What are the sources of customer knowledge, and to what extent do they support the development of sustainable innovations? 2/ What is the level of the organization’s ability to share and disseminate customer-related knowledge that drives sustainable innovation? 3/ What goals of sustainable development concept determine the customer’s involvement in creating sustainable innovations? 4/ What are barriers to using customer knowledge in sustainable innovations and what are the mechanisms for overcoming them? 5/ What method of managing customer knowledge promotes the creation of values that allow the company to develop sustainable innovations?

Keywords: Customer knowledge, innovation, sustainable development, sustainable innovation.

The potential of using artificial intelligence in developing individual human intelligence profiles

[Research-in-Progress]

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Extended Abstract

It seems that most educational systems nowadays are focused on just a part of human intelligence (basically logical, mathematical, and lingual) which implies a lot of general assumptions and actions in the teaching process. As a result, many students are treated as untalented because their dominant talents are not the ones valued in today's school. That causes both frustration and educational problems, not to mention the fact that many great abilities are being wasted due to not being discovered. The aim of this article is to investigate the possibility of using artificial intelligence to define individual intelligence profiles which would be helpful to outline personal development paths in line with the specific set of talents of every human being. On the basis of the desk research outcomes the authors have made a ground for further qualitative research aimed at projecting a certain roadmap of the process focused on discovering with the use of AI the full potential of every person and creating the optimal development path to make that potential realize fully. That will be very advantageous for both individuals as well as the whole society.

Keywords: Artificial Intelligence (AI), individual potential, talent, personal development, educational system, teaching.