Reducing Bias in Risk Assessment: Evaluating Aggregation Methods for Expert Group Estimations

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Background and introduction: Accurate risk assessment often relies on expert judgment, especially in contexts where objective data are lacking. However, such estimations can be significantly affected by cognitive biases. The growing complexity of decision-making in uncertain environments highlights the need for effective methods to aggregate expert opinions. This study investigates how different aggregation techniques can improve the reliability and accuracy of risk evaluations based on expert group inputs.

Objective: The objective of this research is to evaluate and compare four aggregation methods—arithmetic mean, ordered weighted averaging (OWA), fuzzy TOPSIS, and hybrid weighting techniques—in terms of their ability to reduce bias in expert-based risk assessments and support more informed decision-making processes.

Methodology: The study employed simulation-based scenarios combined with a case study approach. Expert group estimations were generated and aggregated using four distinct methods: arithmetic mean, OWA, fuzzy TOPSIS, and hybrid weighting techniques. The aggregated results were then analyzed based on their consistency, sensitivity to outliers, and potential to support robust decision-making. Comparative analysis was conducted to assess how each method mitigates individual biases and reflects group-level consensus.

Results: The findings demonstrate that advanced aggregation methods—particularly fuzzy TOPSIS and hybrid weighting—offer improved reliability compared to simple averaging. These approaches better capture the diversity of expert input and minimize the influence of extreme or biased estimates. OWA also proved effective by allowing adjustable emphasis on optimistic or pessimistic scenarios, contributing to more balanced assessments. Overall, the hybrid methods provided the most accurate representation of group expertise in complex decision environments.

Conclusions: The research concludes that while the arithmetic mean remains widely used for its simplicity, more sophisticated aggregation methods significantly enhance the reliability of expert-based risk assessments. By accounting for individual competence, bias, and scenario weighting, methods like fuzzy TOPSIS and hybrid weighting contribute to more precise and context-aware decisions. The study highlights the strategic relevance of method selection in expert-driven evaluation processes.

Limitations and future research directions: This study was limited by its reliance on simulated data and hypothetical expert judgments. Future research should validate the findings in real-world organizational settings, involving diverse expert panels and live decision-making processes. Additional studies could explore the integration of machine learning with expert aggregation, and examine the psychological factors influencing expert consistency across different contexts.

Keywords: risk assessment, expert judgment, aggregation methods, OWA, fuzzy TOPSIS, hybrid weighting, cognitive bias, decision-making

Building the Sustainable Future: The case of the EIT Climate-KIC

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Background and introduction: European Institute of Innovation & Technology was established to reinforce the EU's innovation capacity and to address societal challenges in 2008, through the integration of the knowledge triangle: higher education, research, and innovation. To this end, EIT has established nine Knowledge Innovation Communities (KICs) addressing societal challenges and key themes of the joint European economic priorities.

Objective: The critical question is: Has EIT and its KICs served their purpose in helping to close the innovation gap between Europe and the United States? More specifically, has the system established, which has utilized over 4 billion euros, been capable of delivering the expected results?

Methodology: This is a single case study for EIT Climate-KIC from its establishment in 2009 through 2024. Data collection is based on public documents supporting the establishment and creation of the innovation policy initiative, as well as public documents prepared during the implementation period of EIT and EIT Climate-KIC, including but not limited to grant reports, business plans, evaluation reports and impact assessments.

Results: EIT strives to create a unique and powerful engine for innovation across Europe, addressing both immediate challenges and long-term competitiveness goals. Although it has undergone four versions of legal setup and partnership models in 15 years, EIT has not been capable of delivering on the expected results. Several key indicators support this conclusion: Lack of Unicorn Startups, Limited Venture Funding, and Unclear Additionality.

Conclusions: EIT has undergone significant evolution in the past 15 years. This shift represents a move from the original quadruple helix model of open innovation, that utilizes excellence and knowledge within a community defined by partnership - towards more systemic, design oriented and context-specific strategies. By moving from a focus on individual projects and capabilities to a more holistic, ecosystem-based approach. The ability to deliver tangible and scalable results will be revealed in time.

Limitations and future research directions: Transparency and continuity are an issue, consequently, our evaluation is limited to examining the relationship between input and output, without the ability to thoroughly assess the system or tools for efficiency and efficacy. The lack of information on the lessons learned, the assessment of discontinued activities, and the overall lack of data regarding the public funds received undermines all claims of success, both for Climate-KIC and EIT itself.

Keywords: competitiveness, innovation, impact assessment, public-private partnership, sustainable development, open innovation

AI-Based Predictive Models for Strategic Management

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Background and introduction: In today's dynamic business environment, the integration of AI-based predictive models into strategic management is transforming decision-making by enabling data-driven, accurate forecasting and improved efficiency. This research explores how AI technologies support strategic decisions, examining their theoretical foundations, practical applications, and the factors influencing successful implementation.

Objective: The objective of this research is to analyze the role of AI-based predictive models in strategic management, focusing on how these technologies support data-driven decision-making and enhance operational efficiency across various industries.

Methodology: The study employs a theoretical framework supported by a comprehensive literature review and qualitative analysis of real and hypothetical case studies across six industries, illustrating the application and effectiveness of AI-based predictive models in strategic management. This research employed a mixed-methods design that combined quantitative data analysis with qualitative inquiry to evaluate and improve an AI-based predictive model for strategic management.

Results: AI-based predictive models significantly improved strategic decision-making across multiple industries, leading to outcomes such as 20–30% higher forecasting accuracy, 10–15% cost reduction, enhanced risk management, and increased operational efficiency. Case studies demonstrate tangible financial and competitive benefits.

Conclusions: AI-based predictive models have already proven their immense value for strategic management. For the first time in history, we have tools that can place the "sensing of the future" on a scientific footing, reducing uncertainty in business decision-making – though uncertainty will never be fully eliminated.

Limitations and future research directions: We have not overlooked the challenges – such as data requirements, model interpretability, and implementation difficulties – wich remind us that AI is not a silver bullet on its own. Without proper data strategy, human expertise, and ethical frameworks, it can fail or even be misused. Future research must develop methods and guidelines to overcome these barriers. For example: How can useful AI models be built in data-scarce environments? How can managers be trained to confidently use AI tools?

Keywords: The aim of this book chapter is to explore the role of Artificial Intelligence (AI)-based predictive models in strategic mana

Structural changes – theories and tendencies

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Background and introduction: The structural transformation of the national economy is a key factor influencing a country's economic development and competitiveness. In Hungary, the 20th century witnessed significant economic and social changes that fundamentally reshaped the relative shares of the agricultural, industrial, and service sectors. This study aims to analyze the structural changes of Hungary's national economy from 1900 to the present, putting it to an international comparative context.

Objective: The central research question is how the Hungary's economic structural changes has transformed over the past century and how these changes relate to international trends. Particular attention is focusing the relative weight of the agricultural, industrial, and service sectors on GDP, as well as to the socioeconomic consequences of this structural transformation and future development opportunities. Patterns among countries from different continents are also target to be identified.

Methodology: This study combines quantitative and qualitative methods. Historical statistical data from the Hungarian Central Statistical Office (KSH), Eurostat, OECD, and World Bank databases were collected and analyzed chronologically. For comparative analysis, structural transformation data from several countries (Germany, Poland, South Korea and the United States) were examined to identify differences and similarities. Using triangle graph and trends for presenting the data.

Results: The analysis reveals that Hungary's economic structure at the beginning of the 20th century was strongly agriculture-oriented, characteristic of the Dual Monarchy period. Significant industrialization occurred during the socialist economy era, while the agricultural sector's share significantly declined. After the regime change, the service sector became dominant, although the industrial sector remained important, recently sifted back on importance but also producing lower value-added products.

Conclusions: Hungary's economic structure has undergone significant transformation; however, features typical of modern post-industrial economies, such as a high level of innovation and knowledge-intensive services, have only partially materialized. This results in structural challenges that may hinder sustainable economic growth and international competitiveness. Regional disparities remain significant, affecting social cohesion as well. For further advance, some areas are recommended to focus on.

Limitations and future research directions: This comparison can be made in other regions as well so further analysis is possible to continue within this same subject. Patterns and trends can be defined. Also comparison between different organization future expectations and trend scenarios can be another area to research. Note that the digitalization recent boom and climate change influences can result several variance on future possibilities worth analyzing in detail.

Keywords: Structural changes, GDP, development, tendencies, future scenarios

Digital Competence Survey in Zala County, Graz and Eastern Styria

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Background and introduction: Nowadays Information Technology (IT) is developing at a rapid pace. Existing techniques are being upgraded and new ones are emerging. Big data, Artificial Intelligence (IA), Cloud Computing etc. are becoming part of our lives. This makes it essential to develop digital knowledge and skills, but also to foster a positive attitude towards innovation.

Objective: In our cross-border research "DIGAP" "Intergenerational accessibility in digitalisation among women", digital competences were measured in 3 target areas: in Zala County, Graz and in the East Styria region among women aged 15 and over.

Methodology: The target sample size was 250-250, stratified by age group, education and place of residence. Our research questions asked whether there were differences in educational attainment between the two regions in the area of digital competences.
Data collection took the form of an online questionnaire and a small-scale questionnaire survey with a survey administrator.

Results: The questions of the questionnaire were developed by our research team based on the recommendations of the DigComp 2.2 framework, which is the most preferred one based on the literature review. The data obtained were processed using the SPSS statistical software package.

Conclusions: Our questions also included an assessment of the areas in which the women surveyed felt the need to develop their digital competences... The analysis also included the exploration of correlations and the description of cluster group behaviour. In this paper, we present our partial results with a focus on educational attainment.

Limitations and future research directions: In the future, we also plan to conduct focus group interviews among the target group

Keywords: digital competence, digital literacy, education, cross-border research

AI for Climate Resilience: Overcoming Behavioral and Organizational Barriers in German Manufacturing Firms

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Background and introduction: Large German manufacturing firms are increasingly vulnerable to climate-related disruptions, making AI-driven adaptation essential. However, adoption is inconsistent, often hindered by behavioral and organizational barriers. This research explores how cognitive biases and structural inertia impinge on AI adoption for climate adaptation in the German industrial context and EU climate policy.

Objective: The objective of this study is to develop a conceptual framework that explains and identifies the organizational and behavioral barriers to AI adoption for climate adaptation in large German manufacturing firms, and to recommend feasible strategies for overcoming these challenges.

Methodology: This study employs a conceptual-theoretical approach, synthesizing peer-reviewed research with empirical evidence from Scopus, IEEE Xplore, and Business Source Completet.

Results: The synthesis reveals that hierarchical decision-making, a lack of cross-departmental collaboration, and widespread mistrust of AI systems are significant barriers. These interact with leadership style, decision-making structure, and organizational culture to create a complex environment that hinders AI adoption for climate adaptation.

Conclusions: The study contributes to the theoretical understanding of AI adoption in climate adaptation by highlighting the interplay between individual cognitive biases and organizational structures. It underscores the necessity for targeted change management strategies that address these behavioral barriers. The findings offer practical suggestions to managers and policymakers aiming to enhance AI adoption in climate resilience initiatives in the manufacturing sector.

Limitations and future research directions: This study, as a theoretical investigation, may be limited in its analysis of technological and regulatory factors of AI adoption, and its focus on large firms limits its applicability to SMEs. Future research should employ mixed methods, international comparisons, and longitudinal research to capture dynamic organizational processes and increase generalizability to different industrial contexts.

Keywords: AI adoption, Behavioral barriers, Change management, Climate adaptation, German manufacturing, Organizational dynamics

Finance without Hierarchy: A Conceptual Exploration of Financial Management in Holacratic and Decentralised Structures

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Background and introduction: As organisations increasingly adopt decentralised governance models such as holacracy, critical questions arise regarding the adaptation of financial strategy within these structures. Holacracy fundamentally challenges the mechanism through which financial decisions are made, prioritised, and governed. In the absence of conventional hierarchical structures, organisations must reconsider how financial authority, accountability, and transparency are structured and managed.

Objective: The study seeks to investigate how financial strategy and decision-making, including areas such as compensation, budgeting, and investment prioritisation, are understood and implemented within decentralised organisational frameworks like holacracy. Drawing on existing academic research, this study seeks to develop a conceptual framework on how financial logic operates in decentralised systems.

Methodology: This study conducts a thematic literature review, integrating interdisciplinary sources across organisational theory, management and finance. Employing bibliometric analysis facilitated by the Biblioshiny interface for R, the study identifies and maps influential contributions within the field. Building on this quantitative mapping, a thematic literature review is conducted through comprehensive synthesis of key discussions and identifications of gaps in the existing research.

Results: The study is expected to uncover key patterns linking decentralised governance with financial management practices. Anticipated themes include role-based approaches to budgeting, peer-informed compensation models, and mechanisms fostering distributed financial accountability. Furthermore, the research intends to advance the academic discourse on holacracy by deepening theoretical understanding and providing insight into its practical implementation.

Conclusions: This paper aims to bridge the conceptual gap between holacratic governance and financial strategy, laying foundation for more integrated theoretical and empirical work. The findings will be relevant for scholars and professionals navigating financial management in non-hierarchical organisational contexts.

Limitations and future research directions: The study is subject to limitations by the current availability and depth of published research within this emerging field. Future research should investigate the adaptation of specific financial models within holacratic or decentralised organisational structures and empirically evaluate their effectiveness in practice.

Keywords: decentralisation, financial management, holacracy, teal organisation

Decomposing the Lower Risk of Green Mortgages: A Measurement Approach

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Background and introduction: This paper investigates the link between residential energy efficiency and mortgage credit risk through the lens of the "green hypothesis," which posits that loans backed by energy-efficient properties exhibit lower default probabilities than conventional mortgages. We propose a novel methodological framework that isolates the disposable income channel – the pathway through which reduced household energy expenditures increase repayment capacity and lower probability of default. The paper makes t

Objective: The aim of this research is to develop a structured, internationally adaptable model that links building energy efficiency with mortgage credit risk. By isolating the disposable income channel, the study provides financial supervisors and central banks with a methodological framework to assess how lower household energy costs can reduce default probabilities, informing sustainable finance and prudential regulation.

Methodology: The research applies a conceptual matrix design combining household income quintiles with building typologies. Energy cost differentials are modeled to estimate gains in disposable income, which are then mapped to changes in mortgage default probability using a logistic regression framework. Data sources include national income statistics, building energy performance classifications, and mortgage portfolio performance, ensuring international adaptability.

Results: This research advances the understanding of the "green hypothesis" by proposing a methodological framework that links energy efficiency to mortgage default risk via the disposable income channel. Instead of relying on numerical estimates, it emphasizes the conceptual and policy relevance of a matrix model built on income quintiles and housing typologies. The approach provides a structured basis for future empirical testing and offers regulators a scalable tool to align financial supervision with

Conclusions: The study demonstrates that energy efficiency can reduce mortgage default risk through the disposable income channel, offering both theoretical clarity and supervisory relevance. The research provides a novel framework for linking sustainability and financial stability, laying the groundwork for future empirical validation and policy application.

Limitations and future research directions: The study is limited by its conceptual focus on the disposable income channel, without integration of wealth, awareness, and collateral effects. Future research should validate the model with country-level data, extend it to additional channels, and explore cross-country comparability to strengthen evidence for supervisory and policy use.

Keywords: Central Bank, Energy Efficiency, Housing, Income Effect, Mortgage Probability Default

35 Years of Zalatriatlon Club. An analysis of club members and and the club's economic activities

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Background and introduction: The Zalaegerszeg Triathlon Club, alias Zalatriatlon, has been a cornerstone of regional sports development in Zala County for 35 years, fostering community engagement and promoting healthy lifestyles. Through its various events and initiatives, the club has significantly contributed to the local athletic and social fabric of Zalaegerszeg and Zala County.

Objective: The point of the present study is to evaluate the growth and impact of Zalatriatlon on the local community. Key objectives include assessing the club's role in enhancing local tourism, stimulating economic activity through triathlon, duathlon, running, and swimming events, and especially, promoting community well-being.

Methodology: A mixed-methods approach will be employed, combining quantitative data analysis of the clubs' books with qualitative in-depth interviews from stakeholders, including club members, volunteers, coaches, local businesses, and government officials. Surveys will also be conducted to gauge extreme sporting accomplishments.

Results: Our research is in progress. However, preliminary findings suggest that the Zalatriatlon has positively influenced the club's economic growth, with increased participation in events correlating with an increasing number of participants in the end-of-the year Mountain Marathon Man, the charity run for Premature Babies, and the Zala Sprint Triathlon event. The club has also facilitated partnerships between local businesses and the local municipality, enhancing regional visibility.

Conclusions: The story of Zalatriatlon exemplifies how sports organizations can drive regional development and determine the well-being of local residents. By fostering community involvement and supporting local businesses, the club has demonstrated its value beyond athletic competition, serving as a model for similar initiatives in other regions.

Limitations and future research directions: The present study might not fully capture the long-term economic effects. Future research could aim to explore the sustainability of the club's economic contributions over time and investigate the potential for replicating its model in other regions to enhance local development through sports.

Keywords: Zalatriatlon, triathlon, interviews, healthy lifestyle, sports accomplishmenst, development

Shared Services Centers as Business Strategy and the Relevance of Intercultural Communication: Definitions and Research Directions From a Systematic Literature Review

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Background and introduction: A Global Shared Services Center (GSSC) refers to the centralization of business functions within a multinational organization, integrating professionals from various cultural backgrounds. This study seeks to examine: What is a GSSC and Why is it adopted as a strategic business model? Why must intercultural communication be considered essential part of it? Despite its effectiveness, this model poses challenges, particularly related to communication and integration.

Objective: The aim of this contribution is to examine, with particular focus on GSSCs, how and why they are used as a business model, additionally to highlight the effects and challenges encountered in environments characterized by intercultural composition.

Methodology: Employing a qualitative methodology based on bibliographic review, academic articles, books, and reports were analyzed to explore the strategic role of GSSCs and the connection relating to challenges of intercultural communication within their structure. The study synthesizes existing knowledge to uncover key implications.

Results: Given that the majority of the workforce in GSSC comprises immigrants, intercultural communication becomes essential to achieving organizational goals. As a business model, GSSCs centralize support functions to enhance efficiency, reduce costs, and standardize processes across multinational organizations—objectives that depend heavily on effective collaboration across cultures.

Conclusions: Findings indicate that intercultural communication is not merely a complementary aspect but an intrinsic element of the GSSC model. Its effectiveness depends not only on operational efficiency, but also on the organization's ability to manage cultural diversity, making intercultural competence a strategic requirement for success in global service structures.

Limitations and future research directions: This study's reliance on qualitative bibliographic review limits its empirical applicability and generalizability. Future research would adopt empirical methods, such as surveys and/or ethnographic studies, to examine how intercultural communication is managed in practice, as well as explore region and/or sector specific and the impact of intercultural training programs.

Keywords: 1. Business Strategy - 2. Global Shared Services Centers (GSSC) - 3. Intercultural Communication

Profitability of Hungarian wineries in a changing world

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Background and introduction: The rapidly changing global environment poses significant challenges to Hungarian wineries. While the COVID-19 pandemic – undoubtedly the most disruptive event of recent years – had a considerable impact on the financial and profitability of all domestic companies, wineries must also contend with the effects of climate change, shifting wine consumption trends, and regulatory risks.

Objective: In our study, we examine how the profitability and financial position of Hungarian wineries evolved during the polycrisis period from 2016 to 2023. Our aim is to explore the relationships between capital structure, financing strategy, and profitability, and to understand how these indicators differ between the pre- and post-COVID periods among the most prominent Hungarian wine-producing enterprises.

Methodology: Our empirical research uses data from 208 active Hungarian grape wine producers. We selected 108 companies based on our inclusion criteria: annual revenue over HUF 100 million and continuous operation since 2016. The literature review focused on size, capital structure, and financing strategies of Hungarian wineries, leading to the selection of key performance indicators: equity-to-debt ratio, financial leverage, ROE, ROA, and ROS.

Results: Preliminary results indicate that the sampled wineries achieved a compound annual growth rate (CAGR) of 5.9% in total revenue during the study period. Aggregate profitability – measured both in terms of operating profit and pre-tax earnings – increased even more significantly at annual growth rates of 18.4% and 22.1%, respectively. However, detailed analysis of the company-level data reveals considerable variation in growth across individual years and wineries.

Conclusions: Furthermore, while the profitability showed improvement over the period, this growth trajectory was disrupted and began to decline following the COVID-19 pandemic. Our research contributes to a deeper understanding of resilience and adaptive strategies of wineries. The findings provide valuable insights for decision-makers, supporting more effective financial and capital structure decisions aimed at ensuring enterprise stability and sustainable growth under diverse macroeconomic conditions.

Limitations and future research directions: Potential directions for future research include extending the timeframe of the study, incorporating additional performance metrics, or conducting international comparisons to better understand the impact of structural differences across regions.

Keywords: wineries, capital structure, profitability, resilience