

Report from the 43rd National Scientific Conference named after him. Professor Władysław Bukiełyński 'Methods and Applications of Operations Research' – MZBO 2025

Przemysław Szufel^a

The 43rd National Scientific Conference named after him. Professor Władysław Bukiełyński 'Methods and Applications of Operations Research' (Pol. XLIII Ogólnopolska Konferencja Naukowa im. Profesora Władysława Bukiełyńskiego Metody i Zastosowania Badań Operacyjnych – MZBO 2025) was held on 12th–14th October 2025 at the SGH Warsaw School of Economics, Poland. The conference was organised by the Decision Analysis and Support Unit, Collegium of Economic Analysis at the SGH Warsaw School of Economics. Detailed information about the conference can be found at the following address: <https://mzbo2025.sgh.waw.pl/>.

The Organising Committee was chaired by Małgorzata Wrzosek, PhD, Assistant Professor at the SGH Warsaw School of Economics, while the Scientific Committee by Przemysław Szufel, PhD, DSc, Associate Professor at the SGH Warsaw School of Economics.

The conference was held under the patronage of the Committee of Statistics and Econometrics of the Polish Academy of Sciences and the Polish Chapter of INFORMS with the support of the Polish National Agency for Academic Exchange under the Strategic Partnerships programme, grant number BPI/PST/2024/1/00129.

The conference focused on the methodological and application aspects of operations research:

- modelling of capital investments;
- optimisation in banking and insurance;
- stock-market analysis;
- optimisation in transport and inventory management;
- consumer-preference studies;
- time-series analysis;
- classical operational-research methods;
- evolutionary and ant-colony algorithms;

^a SGH Warsaw School of Economics, Collegium of Economic Analysis, Institute of Econometrics, Al. Niepodległości 162, 02–554 Warszawa, Poland, e-mail: pszufe@sgh.waw.pl, ORCID: <https://orcid.org/0000-0001-9525-3497>.

- neural networks;
- multi-criteria analysis;
- stochastic dominance;
- non-linear programming algorithms;
- the chaos theory.

The 43rd edition of MZBO sought to address, as comprehensively as possible, issues of importance to the Polish operations research community. The long-established list of conference topics was expanded to include subjects which had emerged from technological progress and the increased computational capabilities of modern hardware. The conference featured sessions devoted to practical challenges and the application of quantitative methods to real-world economic and managerial problems (with particular emphasis on finance and logistics), alongside sessions focusing primarily on theoretical contributions. Special attention was given to contemporary methods of data analysis (including data mining, big data analytics and deep learning) and to the use of advanced and/or large-scale computational approaches in decision support. A detailed description of the thematic coverage and the structure of each session is available on the conference website.

This year's meeting was expanded to include a poster session aimed directly at undergraduate and doctoral students interested in decision analysis, operations research and any related areas. Its purpose was to provide early-career researchers with an attractive opportunity to acquire knowledge and experience and to build professional connections within the operations research community.

The conference gathered 57 participants. This group consisted of faculty members or doctoral students of universities from Poland and Canada, including: Dalhousie University (Halifax, Canada), AGH University of Krakow, Bialystok University of Technology, Krakow University of Economics, Maria Curie-Skłodowska University in Lublin, Nicolaus Copernicus University in Toruń, Poznań University of Economics and Business, Poznań University of Life Sciences, SGH Warsaw School of Economics, University of Economics in Katowice, University of Lodz, University of Szczecin, Wrocław University of Economics and Business, WSB Merito University Poznan, University of Warsaw, Wrocław University of Science and Technology, Poznan University of Technology, the State University of Applied Sciences in Jaroslaw, Systems Research Institute Polish Academy of Sciences, Institute of Economics of the Polish Academy of Sciences, and the Polish Academy of Sciences. Practitioners from PKO Bank Polski, GSK, Roche and Diuna Group were also present.

During the conference, 32 papers and six posters were presented, focusing on various theoretical and practical aspects of operational research methods and data analytics. Additionally, two special sessions were held. The first one was organised

by the Operational Research Section of the Committee on Statistics and Econometrics of the Polish Academy of Sciences and chaired by Marcin Anholcer, PhD, DSc, Associate Professor at Poznań University of Economics and Business. During this session, Paweł Kropiński delivered a lecture on the optimisation of investment strategies. The other special session was organised by the Polish Chapter of INFORMS and chaired by Ewa Roszkowska, PhD, DSc, ProfTit from the Białystok University of Technology. Business practitioners, Witold Fidos (PKO Bank Polski) and Jakub Witkowski (Roche), presented various practical applications of AI and Machine Learning.

The remaining sessions were chaired by Krzysztof Echaust, Michał Jakubczyk, Ignacy Kaliszewski, Bogumił Kamiński, Jerzy Michnik, Józef Stawicki, Tomasz Szapiro, Grzegorz Tarczyński, and Tadeusz Trzaskalik.

There were two keynote addresses. The first one, delivered by Stan Matwin, PhD, Professor Emeritus at Dalhousie University (Halifax, Canada), was titled 'Artificial Intelligence – A serious and personal perspective'. Professor Matwin discussed the role of AI in supporting decision-making processes. The second keynote lecture, 'Double agency and co-evolution for two-mode networks, with an application to corporate interlocks and firms' environmental performance', was presented by Beata Łopaciuk-Gonczaryk, PhD, DSc, Associate Professor at the University of Warsaw, and focused on the Stochastic Actor-Oriented Model for two-mode networks.

During the thematic sessions of the conference, the presentations were authored or co-authored by Marcin Anholcer, Maciej Bartkowiak, Milena Bieniek, Tomasz Brzęczek, Krzysztof Dmytrów, Krzysztof Echaust, Marzena Filipowicz-Chomko, Maciej Fronc, Dorota Górecka, Michał Jakubczyk, Małgorzata Just, Ignacy Kaliszewski, Daniel Kaszyński, Łukasz Kraiński, Adam Kucharski, Konrad Kułakowski, Aleksandra Łuczak, Anna Łyczkowska-Hanćkowiak, Elżbieta Majewska, Jerzy Michnik, Monika Niegowska-Postek, Mariusz Połeć, Ewa Roszkowska, Karolina Sobczak-Marcinkowska, Michał Stasiak, Małgorzata Szałucka, Marek Szopa, Grzegorz Tarczyński, Krzysztof Targiel, Rafał Weron, Aleksandra Wójcicka-Wójtowicz, Małgorzata Wrzosek, Piotr Zaborowski, Sebastian Zając, Mateusz Zawisza. The presentation titles and abstracts can be found on the conference website at <https://mzbo2025.sgh.waw.pl/en/program>.

The poster session included six posters authored or co-authored by Jakub Karnowski, Adam Kasiński, Magdalena Ligus, Dawid Linek, Antoni Łopacz, Piotr Peternek, Przemysław Szufel, and Michał Wójcik.

Traditionally, the Best Conference Paper competition was held during the event. The results were as follows:

- **First Prize:** Karolina Sobczak-Marcinkowska, PhD, Assistant Professor from Poznań University of Economics and Business, for her presentation titled 'Dynamics of Pro-Environmental Consumer Behaviour in the Framework of a Differential-Equations Model';
- **Second Prize:** Daniel Kaszyński, PhD, Assistant Professor from the SGH Warsaw School of Economics, for his presentation on 'Algorithmic Bias in Creditworthiness Assessment';
- **Third Prize:** Milena Bieniek, PhD, Assistant Professor from Maria Curie-Skłodowska University in Lublin, for her presentation titled 'The Impact of an Exchange Mechanism on Pricing and Logistics Decisions in a Supply Chain with Stochastic Power-Law Demand and a Multi-Criteria Decision Structure'.

The next MZBO conference will be organised by the Department of Operations Research and Mathematical Economics at the Poznań University of Economics and Business. The event will be held on 18th–20th October 2026. Information about the conference is available at: <https://mzbo2026.ue.poznan.pl/>.