Higher School of Economics

International Centre of Decision Choice and Analysis

About DeCAn

The International Centre of Decision Choice and Analysis (the DeCAn centre) was established in 2009. On April 24, 2010, the Laboratory received scientific and educational status, and on June 30, 2011 the Laboratory received international status. In 2020 the International Laboratory of Decision Choice and Analysis was renamed to the International Centre of Decision Choice and Analysis.

Main objectives of DeCAn

Most of its work is focused:

- on the theory of individual, social and multicriterial choice;

- on mathematical modelling and empirical analysis of decision-making in various economic and political institutions;

- on game-theoretic models and methods in economics and political theory;

- And on data analysis (methods of clustering, pattern recognition, etc.).

Key research areas

- Study of organizational models and mechanisms (F. Aleskerov, A. Belenky, L. Egorova, A. Karpov, E. Maskin, E. Dogan)

- Study of manipulability of preference aggregation rules (F. Aleskerov, J. Veselova, A. Ivanov, D. Karabekyan, V. Yakuba)

- Theoretical study and applications of collective choice procedures based on the modelling of collective preferences (F. Aleskerov, A. Subochev)

- Theories of job-shop scheduling and strategic planning (A. Lazarev)

Key research areas

- Development of theories and methods of multi-criteria choice (V. Podinovskiy)

- Study of tension and influence models in political and social groups (F. Aleskerov)

- Analysis of financial models of the economy (F. Aleskerov)

- Theoretical and experimental research on cluster-, pattern analysis and its applications (B. Mirkin, A. Myachin, A. Rubchinskiy)

Key research areas

- Development and study of methods of data analysis (F . Aleskerov, S. Demin, A. Lepskiy, B. Mirkin, S. Shvydun, V. Yakuba)

- Development of belief function theories and its applications (A. Lepskiy)

- Development, study and application of network analysis methods (F . Aleskerov, S. Demin, N. Meshcheryakova, S. Shvydun, V. Yakuba)

- Analysis of current situation in the Arctic region (F. Aleskerov, S. Demin, S. Shvydun)

Staff

Achievement of performance indicators during the period from 2020 to 2022

Indicator	Plan	Fact
Number of publications in an academic edition (collection) indexed in Wos or Scopus	20	49
Of which in publications indexed in Scopus or WoS (Q1/Q2)	10	7 (WoS)+22 (Scopus)
Number of dissertations defended by HSE PhD students – employees of the DeCAn	3	2

Some Q1/Q2 articles

- **Bronevich A., Lepskiy A. Measures of conflict, basic axioms and their application to the clusterization of a body of evidence// Fuzzy Sets & Systems, 2021 (online)**

- **Aleskerov F., Demin S. DEA for the Assessment of Regions' Ability to Cope with Disasters // Dynamics of Disasters. Impact, Risk, Resilience, and Solutions. 2021. Ch. 2. pp. 31-37**

- **Shalileh S., Mirkin B. Summable and nonsummable data-driven models for community detection in feature-rich networks // Social Network Analysis and Mining. 2021. Vol. 11. No.1, pp. 1-23.**

- **Shalileh S., Mirkin B. Least-squares community extraction in feature-rich networks using similarity data // Plos One. 2021. Vol. 16. No. 7. Article e0254377.**

- **Alexander S. Belenky, Gennady G. Fedin, Alain L. Kornhauser. An approach to estimating the economic expediency of developing a new cargo transport hub by a regional public administration// International Journal of Public Administration, Vol 44 No 13 p. 1076-1089**

Monographs

- **Binary relations, graphs and collective solutions. Examples and tasks: textbook for universities / F. Aleskerov, E. Khabina, D. Schwartz, L. Egorova. – Moscow: Yurayt Publishing House, 2021. – 459 p. – (Higher education). – ISBN 978-5-534-14489-5**

- **Russell S. Human compatible: artificial intelligence and the problem of control / Trans. from English (edited by Mirkin B.). Alpina non-fiction, 2021**

- **Bronevich A., Lepskiy A. Fuzzy models for data analysis decision making**

Patents

- Certificate of state registration of the computer program No. 2019613713 "Impact Index Analysis", 21.03.2019 (A. Myachin, I. Latypov)

- Certificate of state registration of the computer program No. 2019614995 "Influence in network structures using long-range interaction indices (LRIC)", 16.04.2019 (F. Aleskerov, N. Meshcheryakova, S. Shvydun)

- Certificate of state registration of the computer program No. 2019615222 "Influence in network structures using short-range interaction indices (SRIC)", 22.04.2019 (F. Aleskerov, N. Meshcheryakova, S. Shvydun)

- USA Patent US10275418 B2, 30.04.2019 «Method for selecting valid variants in search and recommendation systems» (F. Aleskerov, E. Mitichkin, V. Chistyakov, S. Shvydun, V. Yakuba)

Scientific conferences

Year	Total number	Number of presentations on foreign conferences	Number of presentations on Russian conferences
2020	31	15	16
2021	33	17	16
2022	35	20	15

DeCAn staff

Year	Staff number	Number of employees under 39 years old	Number of employees – candidates of science or PhD	Number of employees – doctors of science
2020	45	31	17	6
2021	47	31	17	6
2022	42	29	15	6

Autumn schools

- 2019 – "The modern methods and models of the individual and collective choice and decision-making theory with application to network data analysis, aggregation problems, influence indices" with the participation of Hans Peters (Maastricht University, Netherlands), Kanak Patel (Cambridge University, UK), Laszlo Koczy (Centre for Economic and Regional Studies, Hungary), Peter Emerson (de Borda Institute, UK), Anna Khmelnitskaya (St Petersburg University, Russia), Vladimir Itenberg (St. Petersburg State University of Economics, Russia).

- 2018 – "**Current trends in decision-making analysis**" **with the participation of** Itzhak Gilboa (Tel-Aviv University), Theocharis Grigoriadis (Freie Universität Berlin), Michel Grabisch (Université Paris I Panthéon-Sorbonne, Paris School of Economics), Gabrielle Demange (Paris School of Economics), Saptarshi Mukherjee (Indian Institute of Technology Delhi), Stephan Napel (University of Bayreuth), Agnieszka Rusinowska (Centre d'Economie de la Sorbonne, Université Paris 1 Panthéon – Sorbonne), William Thomson (University of Rochester), Katarína Cechlárová, (P. J. Šafárik University Košice).

Mini-courses

- 2021 - V. Budzko (prof, Doctor of Technical Sciences, FITZ IU RAS), F. Ereshko (prof., Doctor of Technical Sciences, FITZ IU RAS), S. Ognivtsev (prof., Doctor of Economics, ANO "System Analysis"), A. Tsvirkun (prof., Doctor of Technical Sciences, IPU RAS) - *"Modeling of the economic mechanisms of the agro-industrial complex. Research and development of models of a digital platform for the management of the agroindustrial complex of Russia (CPU of the agroindustrial complex)".*

- 2020 - Professor Michael Morreau (The Arctic University of Norway) – ***"Democracy without Enlightenment"***

- 2020 - Eric Maskin (Harvard University and HSE University) – *"Arrow's Theorem, May's Axioms, and Borda's Rule"*

Education

- Decision Analysis (F. Aleskerov, S. Demin)
- Games and Decisions in Data Analysis and Modelling (F. Aleskerov, L. Egorova)
- Instrumental Methods for Digital Economics (F. Aleskerov, L. Egorova, S. Shvydun)
- Public Management Decision-making (F. Aleskerov, A. Belenky, L. Myachin)
- Quantitative Methods for Management Decisions (F. Aleskerov, S. Demin, L. Myachin)
- Decision Making and Data Analysis under Uncertainty and Ambiguity (A. Lepskiy)
- Modern Methods of Data Analysis (B. Mirkin)
- Core Concepts in Data Analysis (B. Mirkin)
- Decision Making under Risk and Uncertainty (S. Demin, V. Podinovskiy)
- Game Modules of Decision Making (S. Shvydun)

Seminars

During the year DeCAn holds seminars with the involvement of Russian and foreign colleagues, on which current researches are discussed.

All-Moscow scientific seminar "Mathematical Methods od Decision Analysis in Economics, Business and Politics" is held once a month. This workshop is coordinated by professors of DeCAn – F. Aleskerov, V. Podinovskiy, B. Mirkin

Foreign partners

- COST Actions (EU programme)
- University of Chinese Academy of Sciences
- Harvard University
- University of Oklahoma
- University of Rome Tor Vergata, La Sapienza
- Molde University College – Specialized University in Logistics
- The Hebrew University of Jerusalem
- University of Kiel
- Université Paris 1 Panthéon – Sorbonne
- University of Maryland

- Karlsruhe Institute of Technology
- Tilburg University
- University of Turku
- Ankara University

Thank you for your attention!