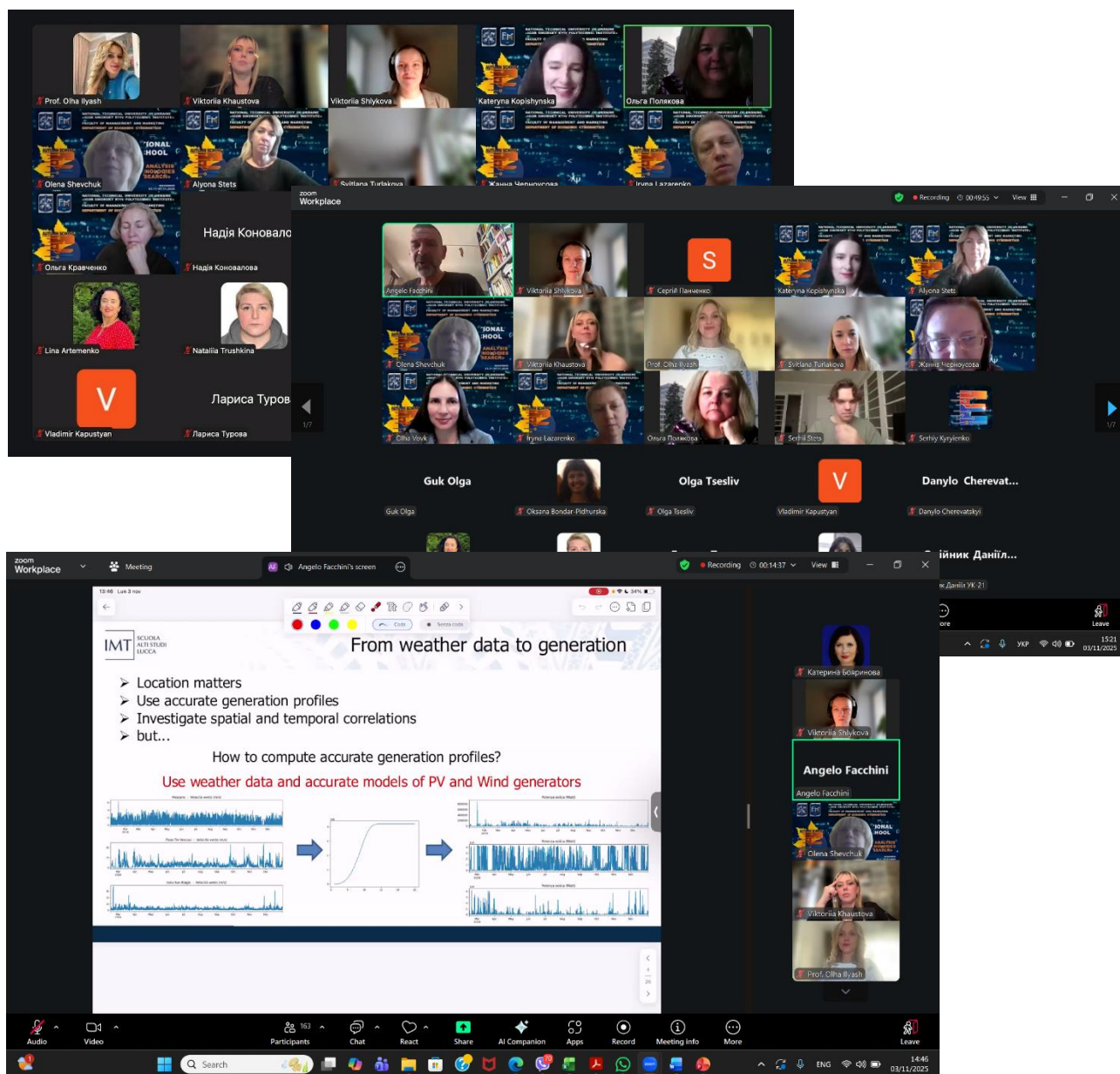


3-7 листопада 2025 року пройшла **III Міжнародна осіння школа "Моделювання, аналіз даних та цифрові технології в економічних дослідженнях"** ("Modeling, Data Analysis and Digital Technologies in Economic Research"), співорганізатором якої виступив **Науково-дослідний центр індустриальних проблем розвитку НАН України**, у партнерстві із **Кафедрою економічної кібернетики КПІ імені Ігоря Сікорського, Wyższa Szkoła Gospodarki w Bydgoszczy, Università degli Studi di Bari Aldo Moro** та іншими установами. В заході взяли участь близько 300 фахівців з України, Італії, Німеччини, Польщі та інших країн.

Серед спікерів Осінньої школи: проф. **Анжело Факкіні** (Школа вищих студій IMT у місті Лукка, Італія), проф. **Жан Макс Таварес** (Інститут економіки та управління (ICEG), Папський католицький університет Мінас Жерайс (PUC Minas), Бразилія), проф. **Ханна Хоттенротт** (Технічний університет Мюнхена, Німеччина), проф. **Віталіна Бабенко** (Харківський національний університет радіоелектроніки, Національний контактний пункт «Європейський інститут технологій та інновацій», Україна), проф. **Олена Трофименко** та доц. **Ірина Лазаренко** (Національний технічний університет України "Київський політехнічний інститут імені Ігоря Сікорського", Україна).



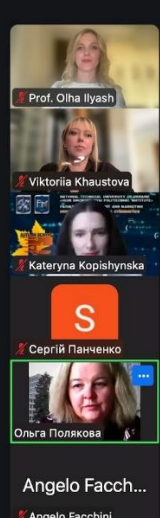
Завідувач сектору макроекономічного аналізу та прогнозування НДЦ ІПР НАН України к.е.н. **Ольга Полякова** та старший науковий співробітник сектору к.е.н. **Вікторія Шликова** взяли участь із лекцією на тему "**Diversification Measurement: Methods and Application**".



III INTERNATIONAL AUTUMN SCHOOL: "MODELING, DATA ANALYSIS AND DIGITAL TECHNOLOGIES IN ECONOMIC RESEARCH"

DIVERSIFICATION MEASUREMENT: METHODS AND APPLICATIONS

Olha Poliakova, Cand. Sc.(Econ.), Head of the Sector of Macroeconomic Analysis and Forecasting
 Viktoriia Shlykova, Can. Sc. (Econ.), Senior Research Fellow of the Department of Macroeconomic Policy and Regional Development
 Research Center for Industrial Problems of Development of the National Academy of Sciences of Ukraine (Ukraine)



What do you think diversification is needed for?

risks mitigation
strong portfolio hedging risks

APPLICATIONS EXAMPLES

Diversification of employment

Share of persons employed in "Mining and quarrying" among the total employed



Region	Localization coefficient	Concentration coefficient
Malopolskie	0.5765	0.3243
Slaskie	0.7589	0.3243
Wielkopolskie	0.3410	0.3243
Zachodniopomorskie	0.1104	0.3243
Lubuskie	0.1334	0.3243
Dziwnowickie	0.2298	0.3243
Opolskie	0.3135	0.3243
Kujawsko-pomorskie	0.3102	0.3243
Warmińsko-mazurskie	0.1907	0.3243
Pomorskie	0.7599	0.3243
Lodzkie	0.1807	0.3243
Swietokrzyskie	0.7887	0.3243
Lubelskie	0.1260	0.3243
Podkarpackie	0.1804	0.3243
Podlaskie	0.2323	0.3243
Warszawski stoleczny	0.0826	0.3243
Mazowiecki regionalny	0.1453	0.3243

Share of persons employed in "Information and communication" among the total employed



Region	Localization coefficient	Concentration coefficient
Malopolskie	0.7801	0.3111
Slaskie	0.6119	0.3111
Wielkopolskie	0.7549	0.3111
Zachodniopomorskie	0.4858	0.3111
Lubuskie	0.3201	0.3111
Dziwnowickie	0.3878	0.3111
Opolskie	0.3583	0.3111
Kujawsko-pomorskie	0.5244	0.3111
Warmińsko-mazurskie	0.2853	0.3111
Pomorskie	0.1885	0.3111
Lodzkie	0.6618	0.3111
Swietokrzyskie	0.2707	0.3111
Lubelskie	0.4766	0.3111
Podkarpackie	0.4761	0.3111
Podlaskie	0.4802	0.3111
Warszawski stoleczny	0.1190	0.3111
Mazowiecki regionalny	0.2117	0.3111

Share of persons employed in "Manufacturing" among the total employed

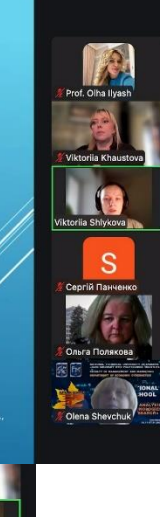


Region	Localization coefficient	Concentration coefficient
Malopolskie	0.5201	0.3021
Slaskie	0.1896	0.3021
Wielkopolskie	0.3455	0.3021
Zachodniopomorskie	0.6328	0.3021
Lubuskie	1.1094	0.3021
Dziwnowickie	1.0757	0.3021
Opolskie	1.0496	0.3021
Kujawsko-pomorskie	0.9550	0.3021
Warmińsko-mazurskie	0.9289	0.3021
Pomorskie	0.9623	0.3021
Lodzkie	0.9830	0.3021
Swietokrzyskie	0.8986	0.3021
Lubelskie	0.6511	0.3021
Podkarpackie	1.3408	0.3021
Podlaskie	0.7905	0.3021
Warszawski stoleczny	0.6717	0.3021
Mazowiecki regionalny	0.8312	0.3021

Share of persons employed in "Construction" among the total employed

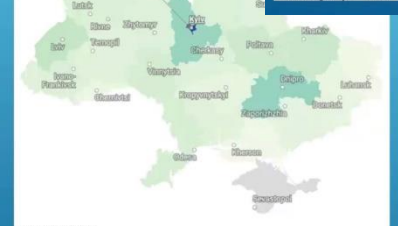


Region	Localization coefficient	Concentration coefficient
Malopolskie	1.2426	0.3759
Slaskie	1.1896	0.3759
Wielkopolskie	1.3455	0.3759
Zachodniopomorskie	0.5144	0.3759
Lubuskie	0.9963	0.3759
Dziwnowickie	0.9196	0.3759
Opolskie	0.9853	0.3759
Kujawsko-pomorskie	0.9807	0.3759
Warmińsko-mazurskie	0.9517	0.3759
Pomorskie	1.3339	0.3759
Lodzkie	0.7603	0.3759
Swietokrzyskie	0.8139	0.3759
Lubelskie	0.8422	0.3759
Podkarpackie	1.3017	0.3759
Podlaskie	0.8255	0.3759
Warszawski stoleczny	1.3290	0.3759
Mazowiecki regionalny	0.8883	0.3759



DIVERSIFICATION

Regions' share of total capital investments by regions



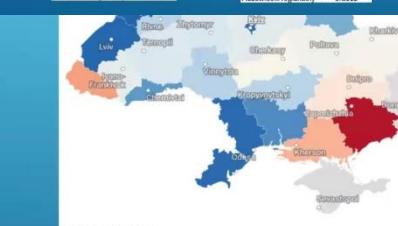
Created with DataCamp

by regions

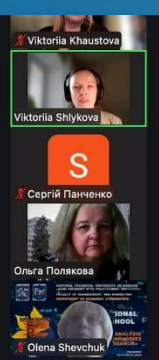
Jenny Index (capital investments by GRP) = 0.11



in regions



Created with DataCamp



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Старший науковий співробітник сектору промислової політики та інноваційного розвитку НДЦ ІПР НАН України к.е.н. **Наталія Трушкіна** провела лекцію на тему "**Hierarchy Analysis Method as a Tool for Managing Organizational Culture Development of an Enterprise**".

Mathematical Programming

- What it is?
Mathematical programming is the field of applied math concerning the question of finding, is extremums of with imposed constraints and variables from specific domain.
- Key Elements
 - Variable: distribution plan, resource usage, production assortment
 - Constraints: demand fulfillment, capacity of facilities, resource scarcity
 - Objective: Maximum profit, minimal expenditures, minimal integral deviation from plan

Classes of Mathematical Programming Tasks

Model usage

The problem was the need to synchronize changes component with the user user environment. The The solution was to to move the program launch to to Jenkins.

	Nodes	Proc.	Queue	Leaves	Exp.	Leaf	Leaf	Objective Bounds
H	0	0	0	0	0	0	0	6742359.609962
B	0	0	0	0	0	0	0	8012713.861625
C	0	0	0	0	0	0	0	8012713.861625
L	0	0	0	0	0	0	0	8012713.861625

BDA ADOPTION ACROSS SECTORS

Frequency

Percent

15%

17

Correlation Matrix of Social Media Behavioral Metrics and Bitcoin Price

	post_count	digg_count	share_count	comment_count	play_count	Close
post_count	1.00	0.56	0.43	0.11	0.69	0.08
digg_count	0.56	1.00	0.69	0.19	0.89	-0.01
share_count	0.43	0.69	1.00	0.11	0.65	0.11
comment_count	0.11	0.19	0.11	1.00	0.18	0.03
play_count	0.69	0.89	0.65	0.18	1.00	0.02
Close	0.08	-0.01	0.11	0.03	0.02	1.00

В роботі Осінньої школи взяли участь науковці та аспіранти Центру. Лекції спікерів супроводжувалися активним обговоренням сучасних методів та підходів до моделювання, аналізу даних, практичного застосування цифрових технологій в економічних дослідженнях. Завдяки співпраці було налагоджено ефективні комунікації між науковцями з України, Польщі, Італії, Бразилії та Німеччини.



We invite lecturers, postgraduate students
and students to participate
in the international autumn school

REGISTRATION

ZOOM

https://docs.google.com/forms/d/1iAfzpJBI9rAHcY9IV6598-9prYgPh_nrWzQyS0rS20/preview <https://us02web.zoom.us/j/81135368382?pwd=Rm90ZnZobnRlU2o1a2RRNHM3R1crZz09>
Meeting ID: 811 3536 838

Passcode: 435661
Whats App:

<https://chat.whatsapp.com/8X7GGteKfjFAU98oskqT7mode=wwc>

CERTIFICATE

CERTIFICATE A condition for obtaining the Certificate is

- attendance of a full cycle of lectures according to the program;
- performing the task for consolidating acquired knowledge, skills and abilities



Maryna Kravchenko,
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National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (Ukraine)

Co-chairs of the organizing committee:

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National Technical University of Ukraine «Igor Sikorsky Kyiv Polytechnic Institute» (Ukraine)

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Dr., Professor, Senate Representative for Internationalisation, WSG University (Poland)

 Alessandro Rubino,
Dr. Professor, Vice rector for International Affairs, University of Bari Aldo Moro (Italy)

Angelo Facchini,
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 Yuliia Zaloznova,
D. Sc. in Economics, Professor, Corresponding Member of the National Academy of Science of Ukraine,
Director, Institute of Industrial Economics of National academy of Sciences of Ukraine (Ukraine).

Members of the organizing committee:

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Yulia Lazarenko, Cand. Sc. in Physics and Mathematics, Doc., Assoc. Prof. at the Department of Economic Cybernetics, National Technical University of Ukraine Igor Sikorsky Kyiv Polytechnic Institute (Ukraine)

Victoria Kuchynchuk, PhD in Economics, Assoc. Prof. at the Department of Economic Cybernetics, National Technical University of Ukraine Igor Sikorsky Kyiv Polytechnic Institute (Ukraine)



Date	Time	Topic	Lecturer
14.30 15.10		Optimal Spatial Configuration of Renewable Sources: a Network Science Approach	Angelo Facchini, Dr., Professor Daniela D'Armenio, Ph.D., IMT School for Advanced Studies Lucca (Italy) Alessandro Rubino, Dr., Professor, Vice rector for International Affairs, University of Bari Aldo Moro (Italy) Olga Poliakova, Cand. Sc. [Econ.], Doc., Head of the Sector of Macroeconomic Analysis and Forecasting, Viktoria Shlykova, Cand. Sc. [Econ.], Senior Research fellow of the Department of Macroeconomic Policy and Regional Development Research Center for Industrial Problems of Development of the National Academy of Sciences of Ukraine (Ukraine)
03.11.2024	15.10 15.55	Diversification Strategy: Methods and Applications	Serhi Stets, PhD student, Senior Software Engineer at EPAN Systems (Ukraine)
15.55 16.35		Web Scraping for Competitive Analytics: Tools and Practices	Olga Kravchenko, D. Sc. [Econ.], Professor, Senior Research fellow of the Department of Cybernetics, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (Ukraine)
16.35 17.15		Modelling Socio-Economic Processes in an Unstable Environment: Features and Methods	Vitalina Babenko, D. Sc. [Econ.], Cand. Sc. [Tech.], Professor, Dean of the Faculty of Electronic and Biomedical Engineering, Kharkiv National University of Radio Electronics, National Contact Point "European Institute of Innovation and Technology" (Ukraine)
14.30 15.10		Pragmatic AI: realise the value of enterprise scaled AI	Vitalina Babenko, D. Sc. [Econ.], Cand. Sc. [Tech.], Professor, Dean of the Faculty of Electronic and Biomedical Engineering, Kharkiv National University of Radio Electronics, National Contact Point "European Institute of Innovation and Technology" (Ukraine)
15.10 15.55		European Institute of Innovation and Technology: Opportunities and Perspectives for Technological Development	Serhi Chuprykov, Chief of department industrial Automation Metinvest Digital (Ukraine)
04.11.2024	15.55 16.35	Digitalization Trends in the Transition to Industry 4.0 in Heavy Industry	Svitlana Kachuba, Professor WSG, Dr., Dean of International Studies and Processes WSG University (Poland) Vadym Orel, Cand. Sc. [Phys.-Math.], Doctoral student at the Department of Mechanical Engineering, Zhytomyr Polytechnic State University (Ukraine)
16.35 17.15		The Economic Efficiency of Introducing Additive Technologies into Serial Production	

08.11.2025
09.11.2025

Performing the task for consolidating acquired knowledge, skills and abilities



Date	Time	Topic	Lecturer
06.11.2024	14.30-15.10	Hierarchy Analysis Method as a Tool for Managing Organizational Culture Development of an Enterprise	Natalia Trushkina, Cand. Sci. (Econ.), Senior Research Fellow of the Sector of Industrial Policy and Innovative Development of the Department of Industrial Policy and Energy Security, Research Center for Industrial Problems of Development of NAS of Ukraine (Ukraine)
	15.10-15.55	Social Inequalities and Energy Vulnerability, in the Energy Transition Era: a Focus on Insular Geographies	Angelo Faccchini, Dr., Professor, IMT School for Advanced Studies Lucca (Italy)
	15.55-16.35	From Theory to Revenue: How Dynamic Pricing Shapes Competitive Markets	Jean Marc Tavares, Professor, CEG Pontifical Catholic University of Minas Gerais (Brazil)
	16.35-17.15	Modeling the Cryptocurrency Market Dynamics: Integration of Stakeholder Behavioral Metrics Based on Social Media Data	Rostyslav Lutsenko, PhD in Economics, Assoc. Professor at the Department of Economic Cybernetics and Applied Economics, V. N. Karazis Kharkiv National University (Ukraine)
06.11.2024	15.10-15.55	Safety and Accessibility for All - Sharing Experience of the SAFE Project	Magdalena Bergmann, Dr., Assoc. Professor, Vice-Rector for International Cooperation, WSO University (Poland)
	15.55-16.35	Comparative Analysis of Advanced Clustering Algorithms in the Context of Modeling Nations' Decarbonization Potentials	Olena Zhylykivych, PhD (Econ.), Doc., Assoc. Professor at the College of Business, The American University of Kurdistan (Kurdistan, Iraq)
	16.35-17.15	Mathematical Optimization of Business Planning: Practice and Application	Mykyta Mazurenko, PhD student, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (Ukraine) Hanna Motenrodt, Dr., Professor, Department of Economics and Policy, Technical University of Munich; Head of the research unit Economics of Innovation and Industrial Dynamics at ZEW (Germany)
	17.55-18.35	Big Data and Start-up Performance	Kuran Serpil, PhD (Tech. Sci.), Senior Researcher Head of the Scientific and Production Laboratory for Energy Flux Density Measurements and Antennas and Microwave Path Parameters, SI "KURMETEKSTANDART" (Ukraine)
07.11.2024	14.30-15.10	Development of a Methodology for Risk Evaluation in the Conformity Assessment of Software for Measuring Instruments	Bohdan Kovalenko, PhD student, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (Ukraine)
	15.10-15.55	Circular Economy and Economic Security: Metrics, Concepts, and a Modeling Framework	Olena Trofymenko, D. Sc. (Econ.), Prof., Professor Iryna Lazarenko, Cand. Sc. (Phys.-Math.), Assoc. Prof., Department of Economic Cybernetics, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (Ukraine)
	15.55-16.35	Prerequisites for the Intelligent Decarbonization Strategies Formation Taking into Account Sustainable Development, Circular Economy and Artificial Intelligence Information Systems	Olena Trofymenko, D. Sc. (Econ.), Prof., Professor Iryna Lazarenko, Cand. Sc. (Phys.-Math.), Assoc. Prof., Department of Economic Cybernetics, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute" (Ukraine)