

# *Dynamic Planning Model for Donetsk & Luhansk*

*David Wheat & Alex Kononets*

*Briefing for Norwegian Ambassador to Ukraine*

*Kyiv, Ukraine*

*September 28, 2021*

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UNIVERSITETET I BERGEN

System Dynamics Group

# Norwegian-Ukrainian Collaboration



## 10-Year Project (2012-2022):

- 'Learning Economics with Dynamic Modeling'
- funded by Norwegian Ministry of Foreign Affairs
- University of Bergen with two Ukrainian universities, Kyiv-Mohyla Academy and Ivan Franko University



## Goals:

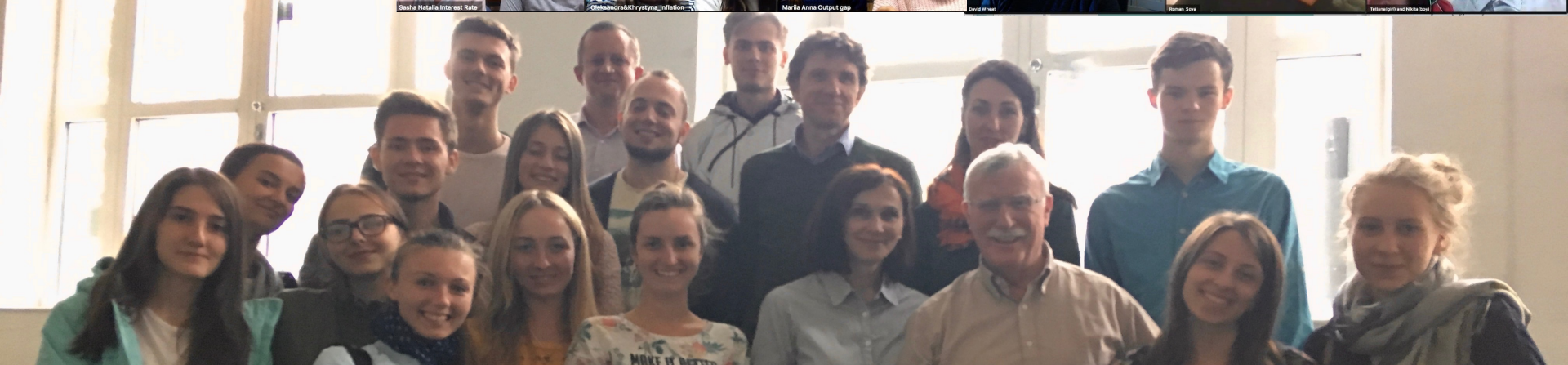
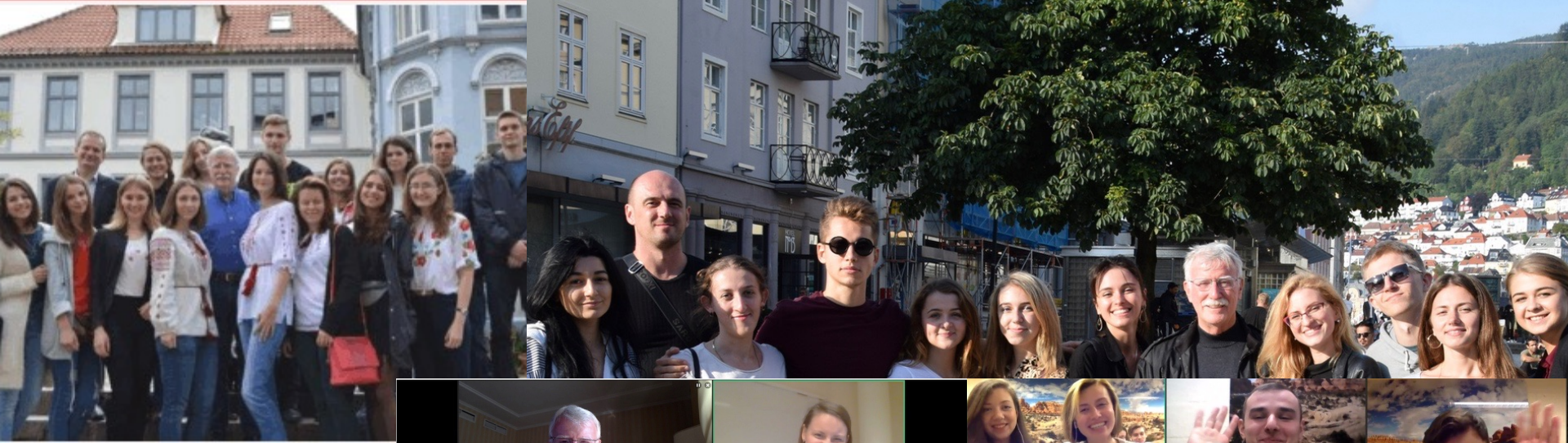
- develop *dynamic modeling capacity* at the Ukrainian universities
- involve students & professors in practical applications of dynamic modeling

## Outcomes after 9 years:

- trained more than 125 students & professors in SD modeling
- created 5 new SD courses
- practical collaborations with
  - National Bank of Ukraine
  - Ministry of Education and Individual schools
  - Ministries of (a) Reintegration (b) Economic Development

# NaUKMA & LNU at University of Bergen

(just a sample of 125+)



# Formal Agreement Ministry of Reintegration & University of Bergen





**МІНІСТЕРСТВО З ПИТАНЬ РЕІНТЕГРАЦІЇ  
ТИМЧАСОВО ОКУПОВАНИХ ТЕРИТОРІЙ УКРАЇНИ**  
площа Лесі Українки, 1, м. Київ, 01196, тел. (044) 284-77-13, (044) 536-92-34  
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від \_\_\_\_\_ 20\_\_ р. № \_\_\_\_\_ На № \_\_\_\_\_ від \_\_\_\_\_ 20\_\_ р.

**Професору Полу Девідсену  
Керівнику проекту Євразія  
Бергенський університет  
Норвегія**

**Шановний професоре Девідсен,**

Міністерство з питань реінтеграції тимчасово окупованих територій України (далі – Мінреінтеграції) запрошує Вас та Ваших колег до співпраці зі складання моделі системної динаміки для розробки економічної стратегії Луганської та Донецької областей України.

Ми були б дуже вдячні якби заслужений професор Девід Віт, в рамках нашої перспективної співпраці, організував і контролював команду студентів і аспірантів з Національного університету «Києво-Могилянська академія» та Львівського національного університету імені Івана Франка, які проходять навчання по програмі системної динаміки в Бергенському університеті для проведення роботи з моделювання.

Також хочемо зазначити, що статистичні та аналітичні дані для дослідження будуть надаватися учасникам для використання в роботі, однак публікація результатів досліджень можлива лише за погодження Мінреінтеграції. Разом з тим, такі обмеження не мають наміру обмежувати можливості публікації опису процесу моделювання в його науковому розумінні.

З повагою

**Перший заступник Міністра** **Ростислав ЗАМЛІНСЬКИЙ**

Милоша Жук  
(044) 536-92-53

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Сертифікат S8E2D9E7F900307B0400000004812F002ACE8500  
Підписувач: Замлинський Ростислав Тетяна Іванівна  
Дійсний з 07.07.2020 по 07.07.2022

Міністерство з питань  
реінтеграції тимчасово  
окупованих територій  
України



22/3.1-436-21 від 01.02.2021

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Bergen, Feb. 3, 2021.

Ministry of Reintegration of the Temporary Occupied Territories of Ukraine,  
Lesi Ukrainsky Square, 1,  
Kyiv 01196,  
Ukraine

Honorable Rostislav Zamlinski,


Thank you very much for your kind offer to collaborate with your ministry on the development of an economic strategy for the eastern regions of Ukraine, Lugansk and Donetsk. Members of the System Dynamics Groups at the University of Bergen are very much looking forward to this opportunity to work with you.


Based on funding by the Norwegian Ministry of Foreign Affairs, we have enjoyed a long-stranding and remarkably successful collaboration with Kyiv Mohyla Academy and Ivan Franko University. Under this program, Ukrainian students have, without exception, performed excellently and we would, consequently, encourage current and future students in our program to apply their skill to challenges facing your nation, such as the ones addressed by the Ministry of Reintegration.

With his wide experience in the field of system dynamics, economics and politics and with his years of experience in working on the modeling of the Ukrainian economy, I know that Prof. David Wheat, Ph D., is the right person to lead and coordinate a team of modelers in this effort.

I wish you success in your formidable task and will support and promote our collaboration to that effect.

Respectfully,

  
Pål I. Davidsen,  
Professor of System Dynamics.



UNIVERSITY OF BERGEN  
Department of Geography  
The System Dynamics Group

Mr. Rostislav Zamlinski  
Ministry of Reintegration  
January 27, 2021

Professor Pål Davidsen  
System Dynamics Group  
February 3, 2021

# Dynamic Planning Model for Donetsk-Luhansk



- Model for economic development in eastern region of Ukraine
- Collaborative project with Ukrainian policy experts and university colleagues
- Designed to help policy makers compare policy options for the region

<https://exchange.iseesystems.com/public/david-wheat/donbas/index.html#page1>



# Donetsk-Luhansk Region of Ukraine





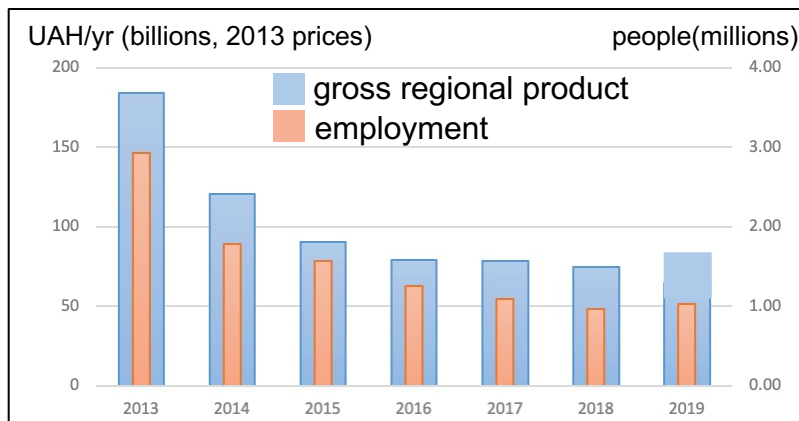
# Dynamic Problems & Modeling Approach

2013 (last year before Russian-sponsored rebellion)

- regional contributions to national economy:  
jobs: 15%    exports: 25%    GDP: 15%

Since rebellion began in 2014

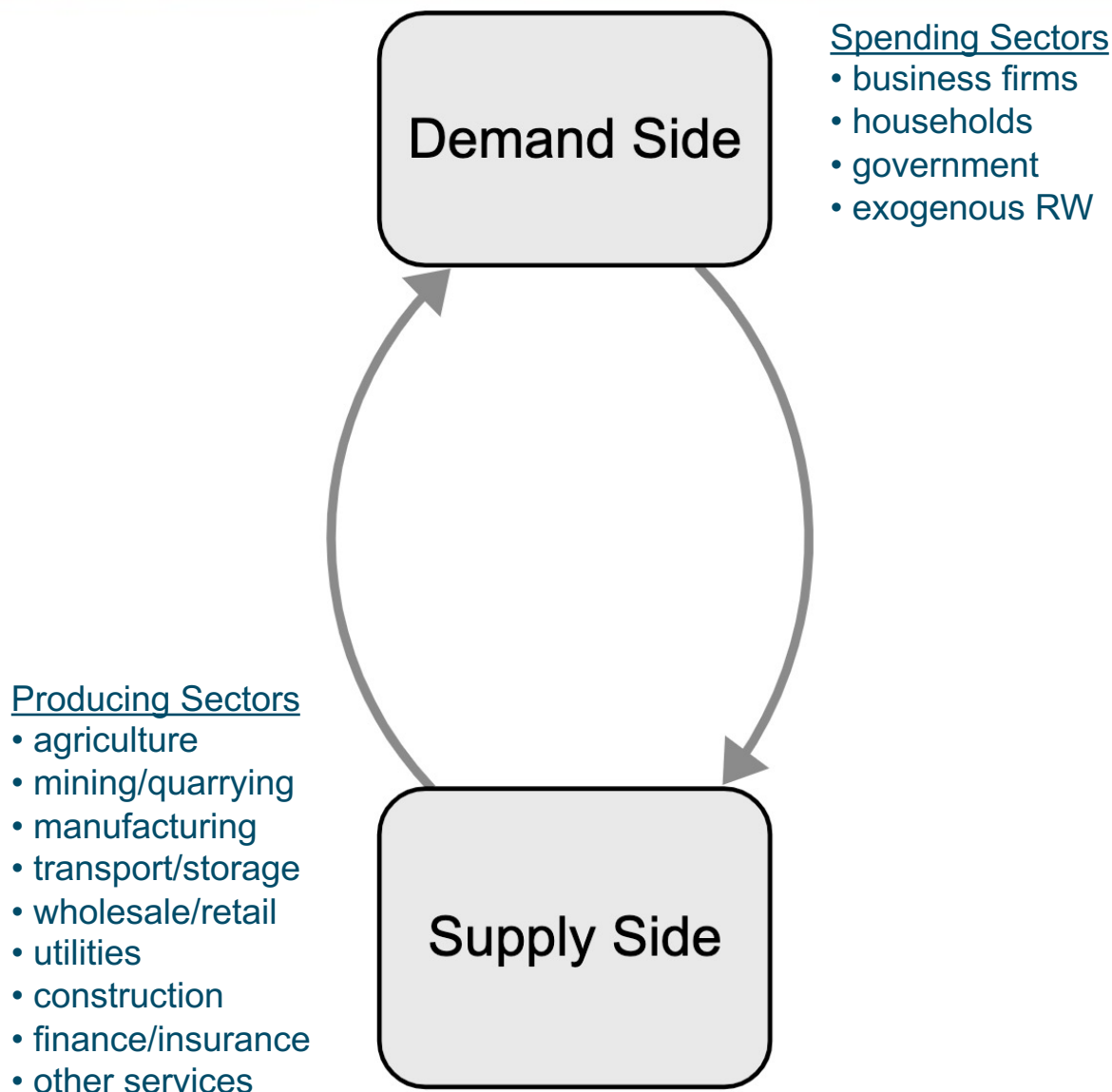
- deaths: 13,000+    • displaced persons: 1.5 million
- GDP and employment: 1/3 of 2013 levels
- multiple problems: safety & security, economy, infrastructure, environment



Modeling Strategy

- build a multi-sector regional economic model
- add government policy initiatives to the explanatory model.

# Structure of the Model Regional Economy



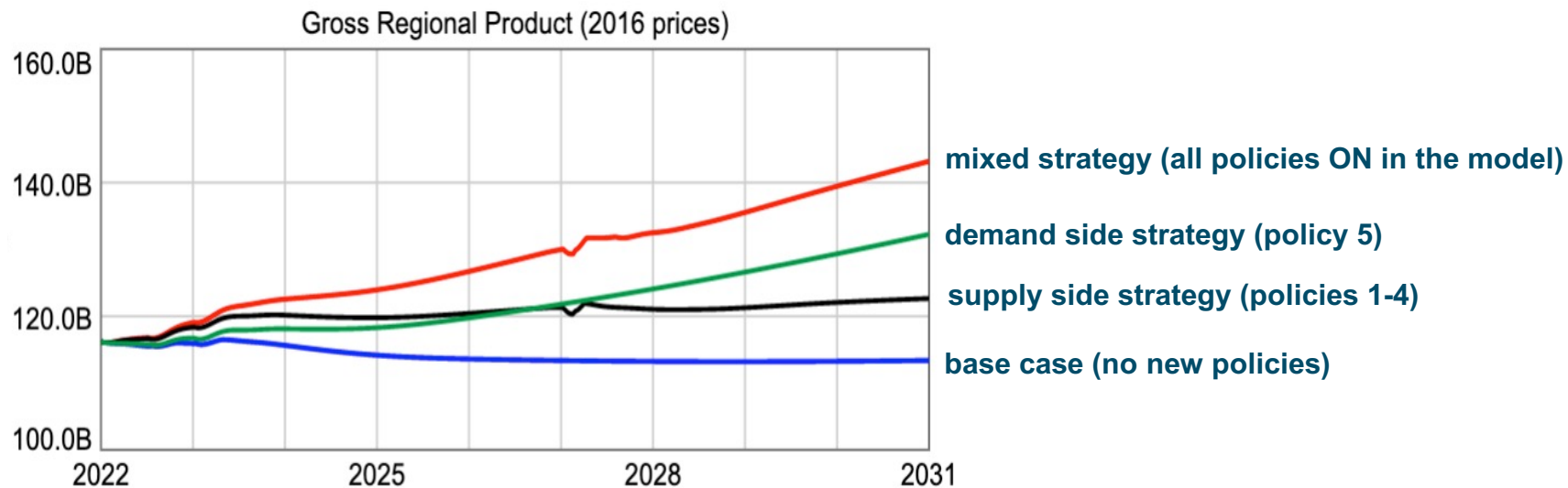
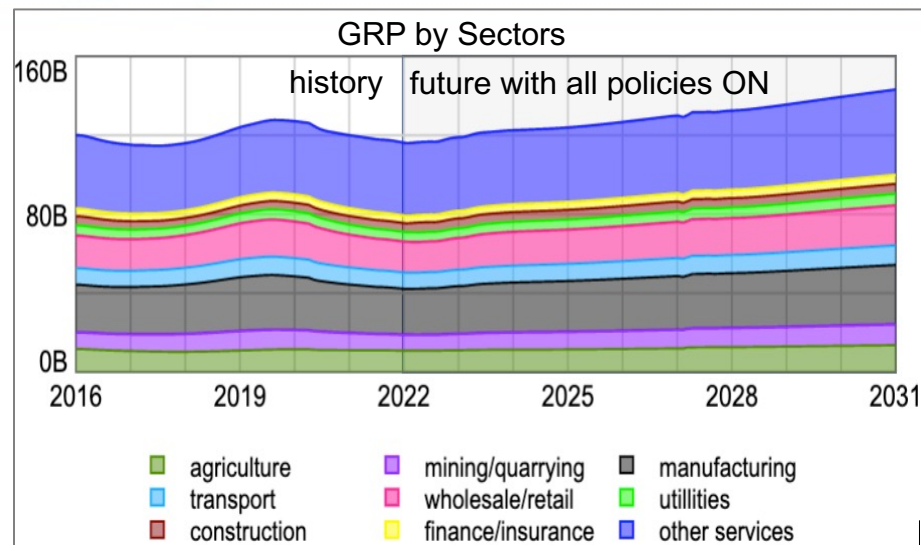




# Preliminary Policy Testing

## Policies Currently Being Tested

- 1. Capacity expansion: AG, MQ, MFG
  - 2. Technology adoption: AG, MQ, MFG
  - 3. Railroad expansion & electrification
  - 4. Import substitution: MQ & MFG
  - 5. Export markets expansion
- supply side strategy (policies 1-4)
- demand side strategy (policy 5)





## I. David Wheat

Emeritus Professor of System Dynamics, University of Bergen, Norway  
Professor of Economics, Virginia Western Community College, United States  
Professor of Monetary Policy, ISM University of Management & Economics, Lithuania  
Professor of Economic Dynamics, National University of Kyiv-Mohyla Academy, Ukraine



Professor Wheat studies economic systems. His research specialty is simulation modeling of macroeconomic structure and behavior in Ukraine and Lithuania, in addition to the United States.

He teaches monetary policy and economic dynamics to graduate students in Lithuania and Ukraine. He also teaches macroeconomics to undergraduates in the United States. In Norway, he taught the system dynamics modeling process for many years, and he continues to teach courses in macroeconomic dynamics and policy design & implementation. His projects include collaboration with Ukrainian economists to build dynamic modeling capacity at national universities in Kyiv and Lviv, creation of a system dynamics version of the central bank's monetary policy model, and building an economic policy model for Ukrainian government ministries. He also worked with economists at Lithuania's central bank to develop a multi-industry system dynamics model of price dynamics in Europe.

For more than twenty years, his system dynamics-based *MacroLab* model has been used by macroeconomics students in the United States. That model is available online, and students can use it without special software. He is currently writing a textbook to supplement student use of *MacroLab*. His latest economics journal article is *Teaching Endogenous Money with Systems Thinking and Simulation Tools*, and the most recent conference paper was *MacroLab20: A Framework for Comparative Macroeconomics* (with M. Oliskevych and A. Novik). He is co-editor of *Feedback Dynamics* (Springer 2021), which includes 'Get Started with Macro Modeling' co-authored with Oliskevych and Novik.

Wheat is past-president of the economics chapter of the International System Dynamics Society. He served as Associate Editor of the *System Dynamics Review* and on the Advisory Board of the *International Journal of Pluralism and Economics Education*. He has given more than thirty international guest lectures. For three decades, he was president of Wheat Resources Inc, a consulting firm serving business and government clients. His current firm, Praktika LLC, specializes in coaching others to build useful models (<https://www.usefulmodels.net>). He received his PhD in system dynamics at the University of Bergen, his master's degree in public policy at Harvard University, and his bachelor's degree in government and mathematics at Texas Tech University. During the 1970s, he served at the White House as staff assistant to the President of the United States.

In a previous life, he and his young family lived in the Blue Ridge Mountains of Virginia, where they built a barn and raised goats and chickens, and he was Coach of the Year twice after winning back-to-back state championships in high school girls' basketball. Now, he and his wife Cynthia have settled in Colorado, halfway between their daughters' families to the east and west.

# Alex Kononets



Alex Kononets is currently an Executive Manager and Coordinator of the MAEX Group (Muskie Alumni Expert Group) in Ukraine. He got his Master in Public Administration from the State University of New York at Albany in the United States, and his MBA from the Maastricht School of Management in the Netherlands. He studied system dynamics while at SUNY Albany. He is also a lecturer on 'Inventive Problem Solving' at the National Technical University of Ukraine: Igor Sikorsky Kyiv Polytechnic Institute.

Recently, Mr. Kononets has worked as an Advisor to the Minister of Economic Development, Trade and Agriculture of Ukraine dealing with current issues in production and energy sectors, railroad reforms, macroeconomic indicators analysis, and export promotions issues, among others. Since July 2020, as a member of the Working Group under the Ministry of Reintegration of the Temporary Occupied Territories of Ukraine, he and the MAEX team, the University of Bergen, and the National University Kyiv Mohyla Academy, have been working on creation of a system dynamics strategic model for the economic development of the Donetsk and Lugansk Regions.

Mr. Kononets previously worked at the International Finance Corporation, the World Bank Group, and the Ukrainian and CEU Regional office. For more than five years, he was an Executive Manager of the OMC Consulting in Amsterdam, where he was involved in a series of public and private strategy development initiatives in the Netherlands, Belgium, and Ukraine. He also participated in development of the EU-Ukraine Twinning Project for the development for the Ministry of Tax and Duties of Ukraine, strategic development projects for the regional communities of Ukraine, and other initiatives.