



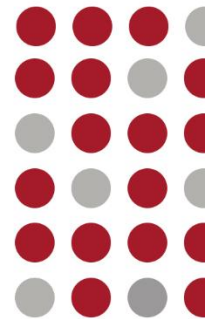
2025



University of
BRISTOL



UNIVERSITY OF
SURREY



Data Envelopment Analysis (DEA) Workshop

Building Resilient Production Systems:
DEA for Social, Environmental & Economic
Sustainability

Welcome

Dear Participants,

It is with great enthusiasm that we welcome you to the Data Envelopment Analysis (DEA) Workshop – Building Resilient Production Systems: DEA for Social, Environmental & Economic Sustainability. In an era defined by unprecedented challenges, the imperative to reimagine production systems has never been more urgent. Resilience, sustainability, and adaptability are no longer aspirational goals but essential pillars for survival and growth in our interconnected world.

This workshop emerges at a critical juncture, where academia, industry, and policymakers must collaborate to address systemic vulnerabilities while balancing productivity and equity boundaries. By focusing on DEA and complementary methodologies like Stochastic Frontier Analysis (SFA), we aim to equip stakeholders with robust analytical tools to measure efficiency, optimize resource use, and embed sustainability across social, environmental, and economic dimensions.

Organized by the University of Bristol Business School and the Centre for Business Analytics in Practice at the University of Surrey, with generous support from the University of Bristol's Business Education Research & Scholarship Network (BERS), this event bridges theory and practice.

Whether you are a researcher refining methodologies, a practitioner implementing solutions, or an advocate driving systemic change, your participation enriches this collective endeavour.

We extend our gratitude to the speakers, contributors, and participants who have made this workshop possible.

Welcome, and let the journey begin!

Organisers: Marios Dominikos Kremantzis, Maria Michali, Leonidas Sotirios Kyrgiakos, Aniekan Essien

Main Contributors

University of Bristol

The University of Bristol, founded in 1909, is a globally respected Russell Group institution renowned for its research excellence, innovative teaching, and academic rigor. Ranked among the top universities in the UK and worldwide, it offers a broad range of programs across disciplines like engineering, social sciences, law, and the arts. The university is celebrated for pioneering research addressing global challenges, including climate change, public health, and human rights. It boasts a vibrant, inclusive community with a strong emphasis on sustainability, aiming for net-zero carbon emissions by 2030. Notable alumni include Nobel laureates, industry leaders, and influential figures such as physicist Paul Dirac. Bristol fosters civic engagement, global partnerships, and student success through state-of-the-art facilities, career support, and a dynamic campus life. Please find more information [here!](#)

University of Bristol Business School

The Business School of University of Bristol is built on a strong tradition of scholarship and learning in business disciplines across Management, Accounting and Finance, dating back to 1955. Our mission is to ensure students gain the future skills needed to thrive in a changing world. We offer a range of degree programmes, including undergraduate, honours, postgraduate taught and postgraduate research. With students from more than 50 countries, our teaching enriches the lives of many young people from around the world. The achievements of their predecessors, our distinguished alumni, illustrate our University's significant contribution to society. The school has a strong track record in research that impacts our world, and according to the 2021 Research Excellence Framework (REF), 88% of our Business and Management research is rated as "world-leading" or "internationally excellent". We strive to influence policymakers and regulators as they, in turn, respond to changes in the world around us. Our research addresses globalisation processes, inequalities, digital innovations, and recognition of environmental and social sustainability and other challenges that face individuals, communities, and organisations. The University of Bristol Business School is based in the heart of a creative, innovative, green city known worldwide for its independent spirit. The city is also home to SETSquared, the world's top university business incubator (UBI Global, 2019), and many multinational companies, including the Big Four accounting firms. Please find more information [here!](#)

University of Surrey

The University of Surrey is located on a landscaped campus in Guildford. London is only 35 minutes away by train and its major airports of Heathrow and Gatwick are both within easy reach, giving ready access from all over the world. Please find more information [here!](#)

Surrey Business School (SBS)

Surrey Business School is in the top 20 business schools in the UK for world-leading research that is having a real-world impact. In the Research Excellence Framework 2021, the School achieved an overall ranking of 19th for research quality, 10th for research outputs and 16th for research impact. It is ranked Top 10 in the UK for business and economics in the Times Higher Education World Rankings 2023 and is accredited by both the Association to Advance Collegiate Schools of Business (AACSB) and the Association of MBAs (AMBA). The School is within University of Surrey, located in Guildford, Surrey. Please find more information [here!](#)

Centre for Business Analytics in Practice (CBAP)

The Centre for Business Analytics in Practice (CBAP) is a multi-disciplinary research centre with the vision of using analytics for better decision-making. The focus of CBAP is to investigate how data of any size can help organizations succeed through fact-based, data-driven, proactive decision-making. We are focused on theoretically driven, empirically rigorous research in these fields, particularly around their applications outside academia. Our Centre brings together research into the methods and applications in key areas, including: Business analytics, AI and big data, Health analytics, Operations and supply chain analytics, Sustainability and net-zero analytics. The need for data-driven, better and faster solutions is more critical now than ever before. Using analytics for better decision-making has grown exponentially over the past decade. Driven by business and societal needs, decision analytics has become one of the most active research areas in academics and in industry. The tools, techniques, and algorithms used for big data projects leverage the most current, state-of-the-art methods applied in a wide variety of fields that include business and management science, computer science, statistics, data science, engineering, and mathematics. Please find more information [here!](#)

Conference Committee



Marios Dominikos Kremantzis,

Senior Lecturer in Business Analytics, University of Bristol, UK

Marios Kremantzis is a Senior Lecturer in Business Analytics at the University of Bristol, serving as MSc Business Analytics Program Director and Senior PGT Tutor. He is a decision scientist whose research focuses on optimisation, DEA, efficiency measurement, and multi-criteria decision analysis. His extensive experience involves constructing and applying mathematical models to extract insights from data and devise practical solutions. Proficient in assessing systems with various network structures using the DEA technique, he has published his work in esteemed journals and magazines including *Studies in Higher Education*, *Times Higher Education (THE)*, *Expert Systems with Applications*, *Socio-Economic Planning Sciences*, *Operational Research*, *Journal of University Teaching & Learning Practice*, *RAIRO-Operations Research*, *Agriculture*, *Supply Chain Analytics*, and *Precision Agriculture*. Marios has organised special sessions for leading international conferences such as those by the UK's OR Society, IFORS, DEA45, and the Athens Institute for Education and Research. He has presented his research work in eminent international conferences and workshops (e.g., EURO, OR Society, IFORS) across the UK, Australia, Denmark, South Korea, and Greece.



Maria Michali,

Lecturer in Circular Economy and Analytics, University of Bristol, UK

Maria Michali is a Lecturer in Circular Economy and Analytics at the University of Bristol Business School, within the Operations and Management Science, Information & Healthcare group. Her research focuses on performance measurement using Data Envelopment Analysis (DEA) and stochastic DEA, as well as machine learning, resource allocation, and sustainability. She got her PhD from Aston Business School in Birmingham, and her work has been published in leading journals, such as the *European Journal of Operational Research* and *Transportation Research: Part D*. She holds an MSc in Statistics and Mathematical Modelling and a BSc in Mathematics from Aristotle University of Thessaloniki, Greece.



Leonidas Sotirios Kyrgiakos,

PostDoc Researcher, University of Thessaly, GR

Leonidas-Sotirios Kyrgiakos is a PostDoc Researcher and works full time in the Laboratory of Agricultural Economics and Consumer Behavior of the University of Thessaly. His doctoral research assesses the sustainability of different agricultural sectors in the context of climate change, in an effort to optimize the inputs use efficiency and mitigate environmental impacts. Methodologically, he is specialized in the use of Data Envelopment Analysis (DEA) to identify the improvement points of each given system, using multiple inputs and outputs, while evaluating quality characteristics that may affect the overall efficiency. Visualization and results dissemination using up to date tools (R Studio, Tableau) is of particular interest to him. He is also part of several Horizon and Prima Projects such as NATAE, ALLIANCE, RESTPOLL, DIONYSUS and GREENDRIEDFRUITS



Aniekan Essien,

Lecturer in Business Analytics, University of Bristol, UK

Aniekan Essien is an Assistant Professor in Business Analytics at the University of Bristol, Business School, UK. His research mainly concerns the application of data analytics using deep learning and artificial intelligence, data analytics and data science towards providing support for decision making that contributes to actualizing positive improvements in public and private organizations. He publishes and reviews for various top journals and conferences globally such as LTSE, OR and EURO conferences.

Keynote Speakers



Emmanuel Thanassoulis, Professor Emeritus, Aston University

Emmanuel is Emeritus Professor in Management Sciences at Aston University, Birmingham, UK. He is a world authority on the key method of Data Envelopment Analysis (DEA) and its use within the field of efficiency and productivity measurement. He has published numerous papers on DEA in top rated academic journals. He is on the Editorial Board of the European Journal of Operational Research. He has developed DEA Software and has offered advice on efficiency measurement to a variety of organisations.



Ali Emrouznejad, Professor, University of Surrey

Ali Emrouznejad is a Professor and Chair in Business Analytics at Surrey Business School, UK. He also serves as the director of the Centre for Business Analytics in Practice, leading research efforts in various fields, including performance measurement and management, efficiency and productivity analysis, as well as AI and big data. Prior to his current position, he held the role of head of the Business Analytics Group at Aston University.



Victor Podinovski, Professor, University of Loughborough

Victor Podinovski is Professor of Operational Research at School of Business and Economics of Loughborough University. Victor's background is in applied mathematics and operational research, and he has previously worked as Professor of Operational Research at Warwick Business School. Victor's academic interests are in the areas of optimisation, decision making and efficiency analysis of firms. He has published extensively on these topics in many international journals, including top European and US journals. He is a co-editor of Journal of Productivity Analysis and co-director of the Centre for Performance and Productivity Analysis at Loughborough University.



Grammatoula Papaioannou, Senior Lecturer, University of Loughborough

Grammatoula is a Senior Lecturer in Business Analytics at Loughborough Business School, Loughborough University. Her current research and teaching include various areas of optimisation, efficiency analysis of firms and supply chain management. Grammatoula has published and has been involved in the editorial and refereeing work for many leading international journals. She has presented her research at numerous UK and international conferences and is currently involved in a major ESRC/UKRI grant investigating sustainability of global supply chains.



Srini Parthasarathy, Doctor, Oxera

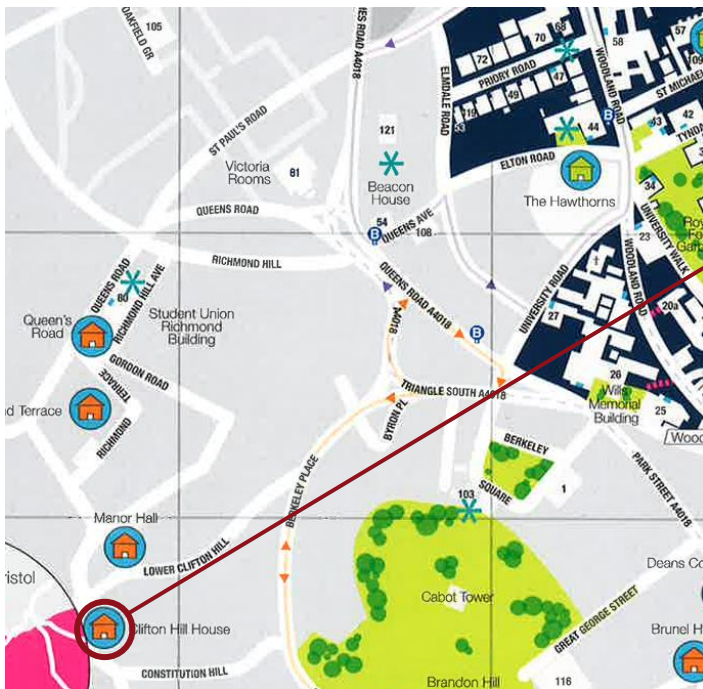
Srini Parthasarathy is an expert in performance assessment and management in competition and regulation, and he heads Oxera's Performance, Productivity and Efficiency practice. He has directed influential studies on regulatory due diligence, incentive framework design, price control reviews, competition investigations, regulatory appeals and merger inquiries. Srini is the architect of Oxera's Efficiency and Productivity Apps that are used by European energy companies to aid strategic and operational decision making. In 2024, he received the exclusive Lexology Client Choice Expert Award in Digital & Data and was recognised as an Energy Expert by Who's Who Legal. Srini has previously taught in the Economics and Business faculties at the University of Warwick, the London School of Economics, and the London Business School. Additionally, he acts as a reviewer for peer-reviewed academic journals in performance management.



Akram Dehnokhalaji, Senior Lecturer, Aston University

Akram Dehnokhalaji is a senior lecturer in business analytics at Aston University. She has a PhD in Operations Research and experience of working for more than 15 years on applying Data Envelopment Analysis and Multi-criteria Decision-Making techniques in Higher Education, Healthcare, and Industry. He is a member of Crisis Management Research Centre and the centre of Artificial Intelligence Research and Application at Aston University. Akram has several publications in top OR journals such as EJOR, JORS, ANOR, NLR, Transp. Res. etc.

Map, Parking & Transportation Information



Goldney House – Garden Room,
Lower Clifton Hill, Hotwells,
Bristol, BS8 1BH, UK



Car Parking: Street parking near Goldney House is primarily permit only for local resident's (Monday to Saturday). There are limited pay and display bays available on a first come-first served basis. There is also a long stay NCP car park nearby on Jacobs Wells Road, BS8 1EH. For more information please visit: www.bristol.gov.uk/parking/west-end-long-staycar-park

To find your nearest electric car charging facilities, please visit: www.zap-map.com/live/ Park & Ride: Park and Ride services allow you to park without difficulty on the outskirts of the city.

Transportation:

A **bus transports** you to the city centre. For further information please visit: www.travelwest.info/parkandride.

By Taxi: V Cars: +44 (0)117 925 2626 www.v-cars.com/locations/bristol

By Train: Bristol Temple Meads is the closest main train station, 1.6 miles and a 35-minute walk away from the venue. Alternatively, you can use local buses or an e-scooter to transport you to the venue.

By Local Bus: The number 2a and 8 bus services run from Bristol Temple Meads train station and stop within a 5–10-minute walk from Goldney House. Alight at The

Triangle on service 2a, or Victoria Square Park on service 8. Timetables are available at: www.firstgroup.com/bristol-bath-and-west.

By Bike: There are racks available for locking up your bike inside the courtyard of Goldney House. More can be found at Clifton Hill House and Manor Hall which is a short walk away.

By E-scooter: TIER e-scooters operate in the Bristol area and are a great way to get around the city. The nearest parking spots are outside the entrance to Goldney House and at the top of Hensmans Hill. You will need the app on your phone and a driving licence to use them: www.voi.com.

Registration Information

Registration desk

When	Where
Day 1 - 10:30 - 11:00 Day 2 - 08:30 - 09:00	Goldney House – Garden Room, Lower Clifton Hill, Hotwells, Bristol, BS8 1BH, UK

All participants are required to register at the registration desk before attending the sessions.

Name badges

A name badge is provided at the registration desk and must be visible and worn at all sessions and social events throughout the workshop.

Dinner

When	Where
18:00-21:00 Monday 31 st March 2025	Browns Brasserie & Bar Bristol 38 Queens Rd, Clifton, Bristol BS8 1RE, UK

Find the location [here!](#)



The **Browns building** in Bristol is modelled on the Doge's Palace in Venice and was once part of the outstanding Bristol Museum and Art Gallery. It was restored to its former glory in 1992 and is now very much part of the landscape. Bristol is a city of bridges, boats and beautiful churches with the stunning Georgian Queen Square at the centre and the world-famous Clifton Suspension Bridge on the cliffs of the Avon Gorge. So come and join us at Browns for a great atmosphere, delicious food, sparkling fizz and cool cocktails!

Communication & Emergency

Internet Access

Wi-Fi Access - [University of Bristol Wireless » Visitors](#)

Emergency

Health and Safety – <https://www.bristol.ac.uk/safety/>

Website

Getting to the University of Bristol - [Maps and travel information | University of Bristol](#)

Virtual tour: <https://www.bristol.ac.uk/virtual-tour/>

[About the University | About the University | University of Bristol](#)

Email

Please contact directly **Marios Dominikos Kremantzis** at marios.kremantzis@bristol.ac.uk should you require any assistance.

Social Media

Click on the icons or text!



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Top 10 UK university and 54th in the world (QS Rankings 2025)

Top 5 UK university for research (REF 2021)

Top 5 most targeted UK university by top UK employers (High Fliers 2024)

Remarks for Speakers & Chairs

- There are different numbers of speakers in sessions. Please split the session time equally between each speaker, while allowing 2–3 minutes allocated for speaker transitions.
- Speakers: please bring your paper presentations on a pre-loaded memory stick to your sessions.
- The last presenter in each session will also serve as the session chair.
- Session chairs are responsible for introducing the speakers at the beginning of the session.
- As a speaker, please arrive at least 15 minutes before your session starts. This will give you time to check-in with the session chair and set up your computer and projector.
- Attendees are kindly requested to switch off cell phones and mobile devices prior to the start of the presentations.
- If you are chairing a session, ensure that the presentations follow the order indicated in the program.
- In case a scheduled speaker is absent, please maintain the original time schedule instead of shifting every talk forward. This approach facilitates seamless session transitions.
- Should the designated session chair be absent, the final speaker should assume the role of chair for the session.

Programme - Overview

Day 1 - Monday 31st March 2025

10:30-11:00	Arrival & Registration University of Bristol - Please check registration info
11:00-12:30	Presentations
12:30-13:30	Light lunch and Refreshments
13:30- 15:00	Presentations
15:00-15:30	Afternoon Refreshments
15:30-17:30	Presentations
18:00-21:00	Dinner at Browns Brasserie & Bar Bristol

Day 2 - Tuesday 1st April 2025

08:30-09:00	Registration University of Bristol - Please check registration info
09:00-10:30	Presentations
10:30-11:00	Mid-morning refreshments
11:00-12:30	Presentations
12:30-13:30	Light lunch and Refreshments
13:30- 15:00	Presentations
15:00-15:30	Afternoon Refreshments
15:30-17:00	Presentations

Detailed Programme

Day 1 - Monday 31 st March 2025	
11:00-11:05	Welcome Speech Marios Kremantzis* (University of Bristol)
11:05-11:15	50 years DEA Anniversary Ali Emrouznejad* (University of Surrey)
11:15-12:30	Frontier benchmarking in regulation of European energy networks— lessons from ongoing engagements with the Bundesnetzagentur (German energy regulator) Srini Parthasarathy* (OXERA)
	Efficiency assessment with limited demand on services: An application to courts of justice Grammatoula Papaioannou* (Loughborough Business School); Panagiotis Ravanos (European Commission, Joint Research Center (JRC)); Giannis Karagiannis (Department of Economics, University of Macedonia); Victor Podinovski (Loughborough Business School)
12:30-13:30	Light lunch and Refreshments
13:30-15:00	VRS and CRS models with ratio inputs and outputs Victor Podinovski* (Loughborough University)
	A Markov Chains- DEA model for Environmental Sustainability Emmanuel Thanassoulis* (Aston University); Andreas Georgiou (University of Macedonia); George Tsaples (University of Macedonia)
15:00-15:30	Afternoon Refreshments
15:30-17:30	Variable RTS in hierarchical network DEA: Enhancing efficiency in higher education systems Siwei Xiao* (University of Birmingham); Marios Kremantzis (University of Bristol); Leonidas S. Kyrgiakos (University of Thessaly); Aniekan Essien (University of Bristol); George Vlontzos (University of Thessaly)
	An adjusted Luenberger productivity indicator for comparing the group performance and decomposing the effect of the undesirable output: some discussion of the feasibility Chixiao Lu* (University of Surrey); Ali Emrouznejad (University of Surrey)
	Cross-efficiency with graph neural network concept for efficiency assessment of decision-making units with internal dependent Jing Zhao* (University of Surrey)
18:00-21:00	Dynamic Decarbonization under Cap-and-Trade Regulation: A Slack-Based DDF Model Using a Stackelberg-Nash Game Elnaz Azadi* (Surrey University); Ali Emrouznejad (Surrey University); Zhou Xun (Surrey University)
	Dinner at Browns Brasserie & Bar Bristol

Day 2 - Tuesday 1st April 2025

Unravelling Key Drivers of UK Passenger Vehicle Emissions: A CNLS-based Decomposition Study

Qiongfang Zhang* (University of Surrey); **Xun Zhou** (University of Surrey); Abhijit Sengupta (University of Surrey)

9:00-10:30

Analysing countries ability to transform inputs into well-being using WHR data

Nikolaos Rigas* (STATEC Research)

Evaluating the Environmental-Financial Efficiency of European Industries

Marc Aliana-Cervera* (Universitat Autònoma de Barcelona); Antonella Basso (Ca' Foscari University of Venice); Stefania Funari (Ca' Foscari University of Venice)

10:30-11:00

Mid-morning refreshments

Sustainability Performance of Small and Medium-sized Enterprises in Selected European Countries using Data Envelopment Analysis

Akram Dehnokhalaji* (Aston University); Shahin Ashkiani (Bank of England); Prasanta Dey (Aston University); Chrisovalantis Malesios (Agricultural University of Athens)

11:00-12:30

Assessing the efficiency of European Agricultural systems under the prism of a parallel hierarchical network structure

Leonidas S. Kyrgiakos* (University of Thessaly); **Siwei Xiao** (University of Birmingham); **Marios Dominikos Kremantzis** (University of Bristol); Marios Vasileiou (University of Thessaly); Georgios Kleftodimos (Mediterranean Agronomic Institute of Montpellier); George Vlontzos (University of Thessaly)

12:30-13:30

Light lunch and Refreshments

Extending Eco-Efficiency Evaluation in DEA through a Lens of Strong Sustainability

Xun Zhou* (Surrey Business School)

13:30-15:00

U.S. Airlines Efficiency: The Benefit-of-the-Doubt DEA Framework with Common Weights

Ane Elixabete Ripoll-Zarraga* (Universitat Autònoma de Barcelona)

The Impact of GenAI in the teaching and students' assessment of Quantitative modules

Dimitris Giraleas* (University of Surrey)

15:00-15:30

Afternoon Refreshments

Multi-level Risk Assessment in Additive Manufacturing Systems: A Multiplicative Nonparametric Approach

Chixiao Lu (Surrey Business School); **Abdolreza Roshani*** (Surrey Business School); Glenn Parry (Surrey Business School); **Ali Emrouznejad** (Surrey Business School)

15:30-17:00

Incorporating percentages in the assessment of school efficiency: An empirical study

Junlin Wu* (University of Greenwich), Nikolaos Argyris (Loughborough University), **Victor Podinovski** (Loughborough University)

Inverse Transformation of Undesirable Outputs in DEA: Introducing an Iterative Approach

Maria Michali* (University of Bristol), **Ali Emrouznejad** (University of Surrey),
Gholam R. Amin (University of New Brunswick)

Incorporating Decision-Maker Preferences in DEA: A Risk-Based Efficiency Assessment

Seyed Ali Naji Nasrabadi Yazd* (University of Bristol)



Data Envelopment Analysis (DEA) Workshop

31st March – 1st April 2025 | University of Bristol, Bristol, UK



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