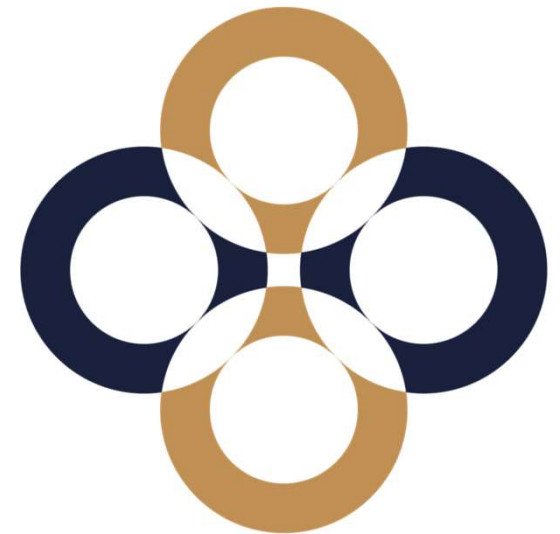


Doctoral School of Business and Management

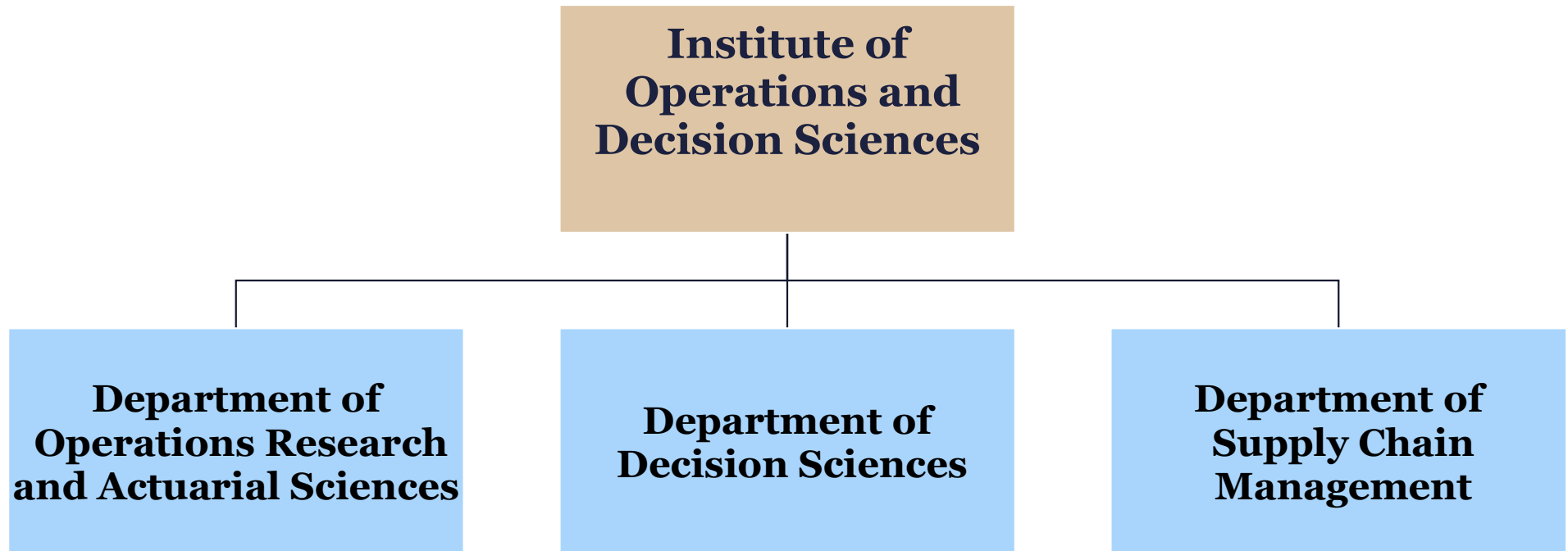
Operations and Decisions (O&D) Program

Research Week
08.02.2024

Andrea Gelei, Program Director



Institutional structure behind the doctoral O&D program





Methodological variety

QUALITATIVE:

- Interview based research with content analysis,
- Case study research,
- Participatory methods,
- Horizon scanning.

QUANTITATIVE:

- Survey, or other database-driven analysis with multivariate statistics,
- Modelling and optimization,
- Bayesian thinking,
- Simulations,
- Mechanism design,
- Assignment and matching techniques,
- Risk analysis,
- Network analysis,
- IO methods,
- MCDM,
- Game theory,
- Cost allocation solutions.

Program-specific courses



COMPULSORY:

Management Sciences and Decisions – Sándor Bozóki and Richárd Szántó

Complex Systems – Andrea Gelei and Alexandra Köves



ELECTIVE:

Supply Chain Management – Krisztina Demeter and Tibor Illés

Participatory Decision Making – Gabriella Kiss and Judit Gáspár



Next program:

Workshop on uncertainty and ambiguity in
business and management

13.03.2024, from 14.00

❖ **Invited speakers:**

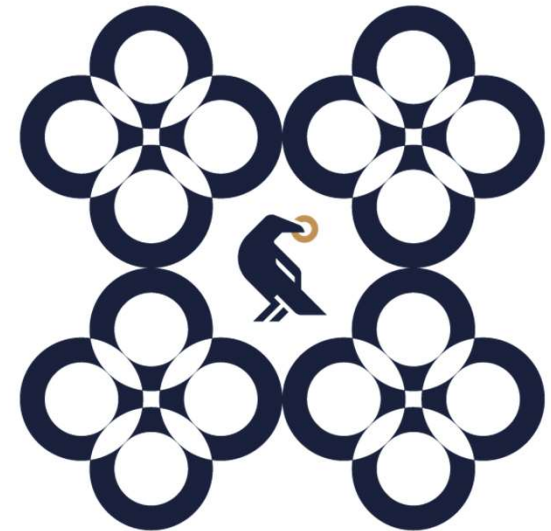
❖ Tamás Jónás, Research and Development Manager at Flex

❖ *From the Institution:*

❖ Kolos Ágoston

❖ Richárd Szántó and Borbála Szüle

❖ Marieke Külpmann-Pahlke



For the **2024/2025 academic year**, we **specifically** welcome applications related to the following **ongoing research projects**:

- Coopetition in the hydrogen supply chain led by **Sofía De León Almaraz**
- Degrowth doughnut optimisation led by **Alexandra Köves**
- Horizon scanning for postgrowth futures led by **Judit Gáspár**
- Participatory decision processes for post-growth models led by **Gabriella Kiss**
- Innovative ranking methods in network science led by **Balázs Sziklai**
- Engineering economics in matching markets led by **Péter Bíró**
- Firm competitiveness research at the Competitiveness Research Center led by **Dávid Losonci**
- Industry 4.0 and digitalization in firms and supply chains led by **Krisztina Demeter**
- Resilient supply chain – focus on critical infrastructure led by **Judit Nagy**

The list is not exclusive.

Coopetition in the hydrogen supply chain (HSC)*

Sofía De León Almaraz (Department of Supply Chain Management)

*Part of an OTKA project

❖ Context

- ❖ Green hydrogen is a promising alternative in the energy transition
- ❖ Cooperation is needed to allow the successful implementation of new hydrogen technologies along the supply chain
- ❖ Many actors are implicated in the development of the HSCs

What are the effects of cooperation, competition and coopetition in the deployment of the HSC?

Keywords:

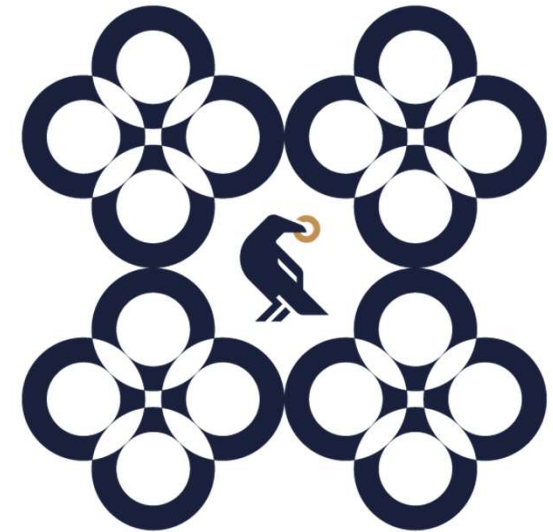
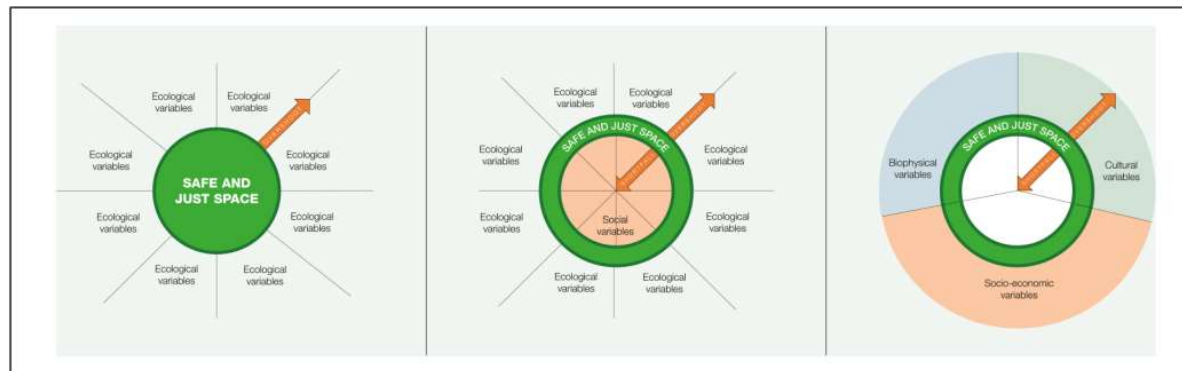
- Hydrogen Economy
- Supply Chain Management
- Qualitative and quantitative research
- Cooperation – Competition – Coopetition
- Game Theory
- Multi-objective optimization



Degrowth Doughnut Optimisation

Alexandra Köves

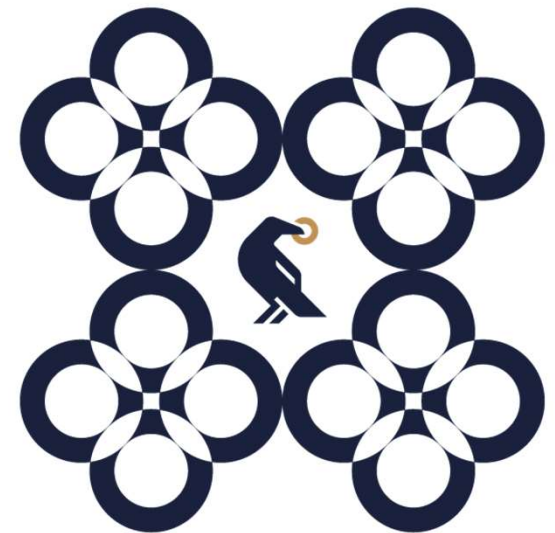
- ❖ What type of indicators should we follow on the different societal and organisational levels to manage sustainability transitions?
- ❖ What are the priorities?
- ❖ How can we have a holistic understanding of the narratives that emerge?



Horizon scanning on beyond-growth scenarios

Judit Gáspár

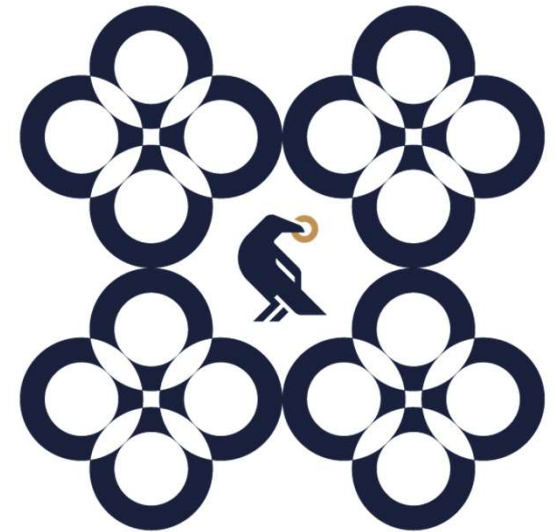
- ❖ within the Models, Assessment and Policies for Sustainability (MAPS) Horizon project
- ❖ draw up different economic, technological, and societal futures using a combination of horizon scanning and scenario-building
- ❖ identify trends, tendencies, weak signals, wildcards, and hypes that may influence the future based on both desk-based research and participatory workshops involving a wide range of expert stakeholders



Participatory decision-making processes for improved beyond-growth models

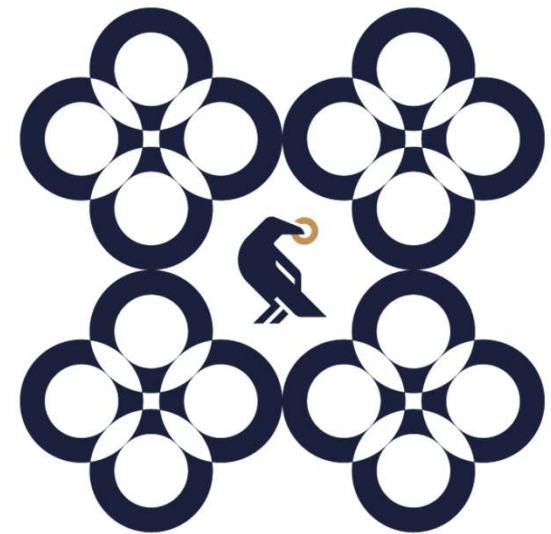
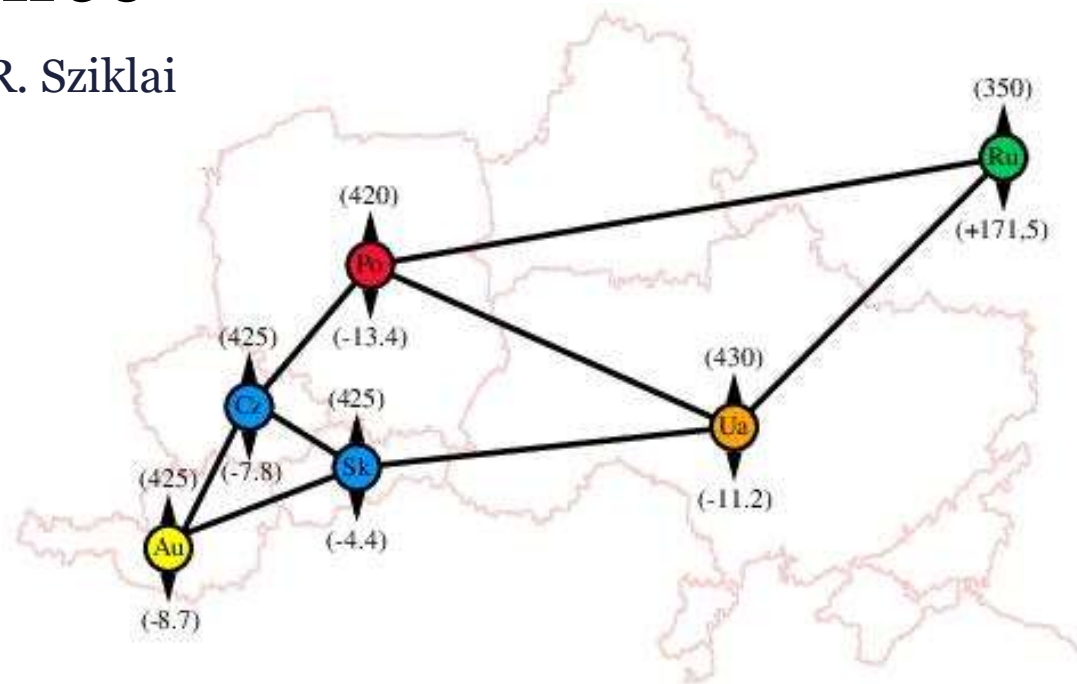
Gabriella Kiss

- ❖ within the Models, Assessment and Policies for Sustainability (MAPS) Horizon project
- ❖ use participatory processes such as systems mapping, backcasting, and citizens' juries in Hungary and Finland to test the acceptability of different policy options modelled within the project

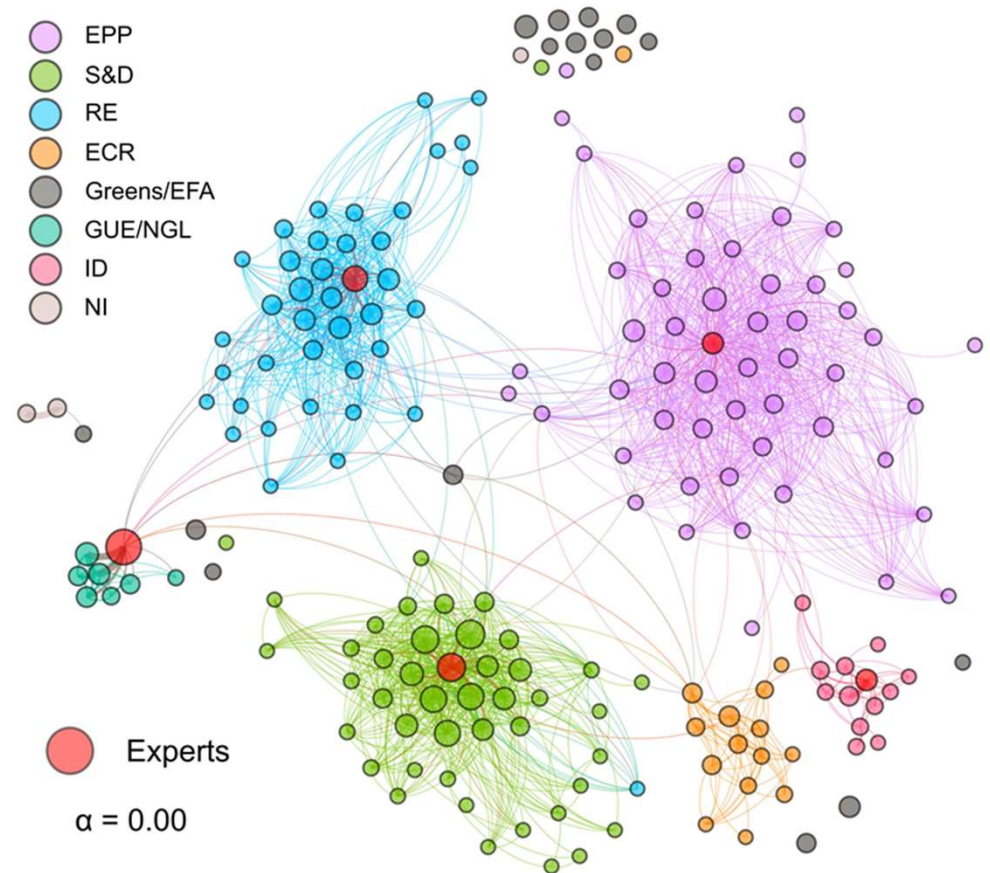
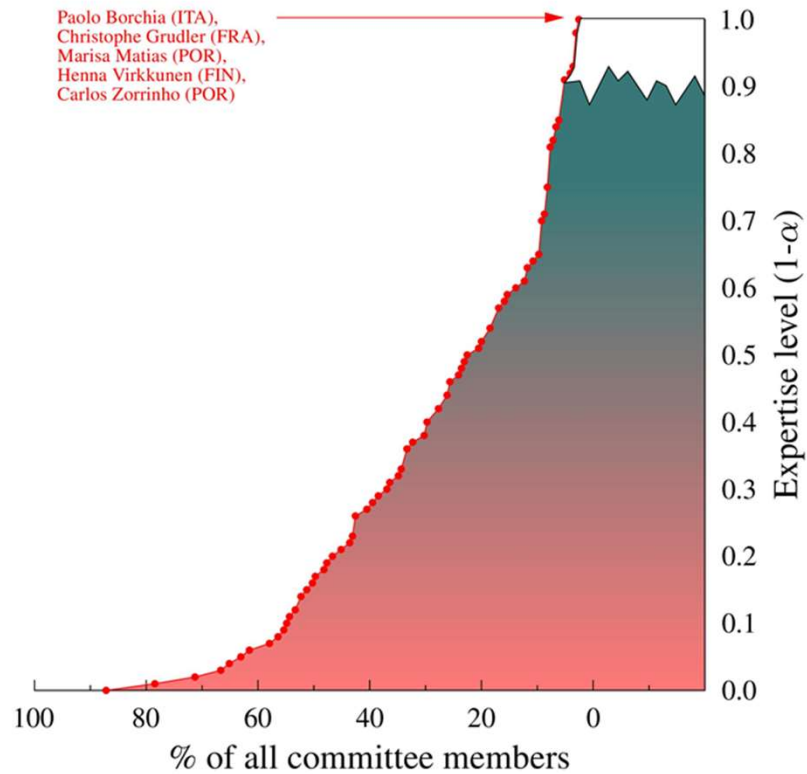


Innovative ranking methods in network science

Balázs R. Sziklai

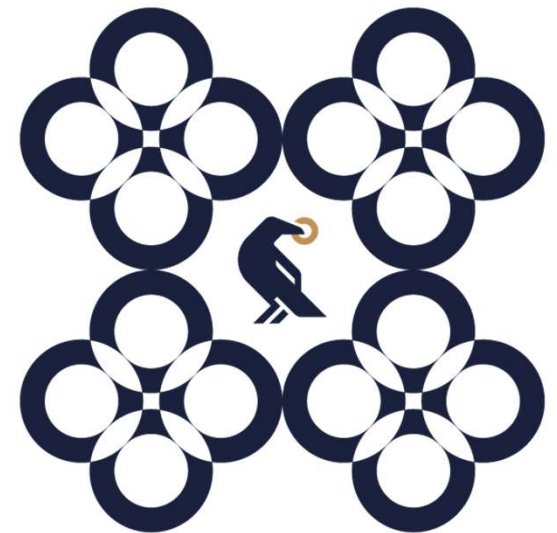


Co-sponsorship networks in the European Parliament



Possible research topics

- Diffusion of innovation in industrial and social networks
- Identifying key groups in various networks (e.g. influencers, innovators, trolls, experts)
- Evaluating the strengths of links (e.g. the impact of a gas pipeline)



Engineering Economics in matching markets

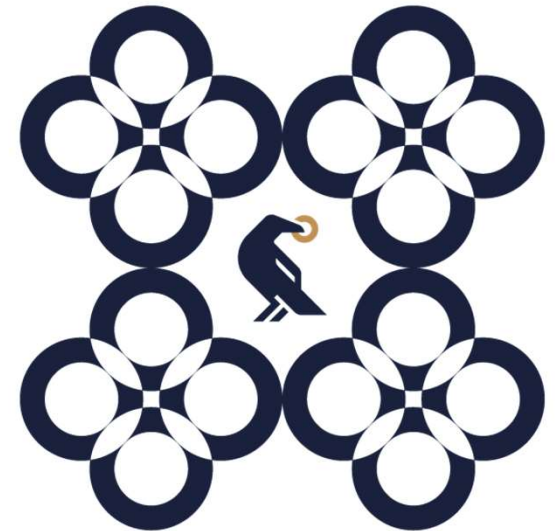
Péter Biró (CUB/OR department, and HUN-REN/KRTK/Institute of Economics)

Applications:

- University admissions in Hungary
- Secondary school choice in Hungary
- CEMS Business project allocation
- Course allocation in universities
- Kidney exchange programmes in Europe
- Clearance of financial obligations / portfolio compression

Interdisciplinary research fields:

- Algorithmic Game Theory
- Algorithmic Mechanism Design
- Computational Social Choice
- Engineering Economics



Engineering Economics in matching markets

Péter Biró (CUB/OR department, and HUN-REN/KRTK/Institute of Economics)

Conference on Mechanism and Institution Design

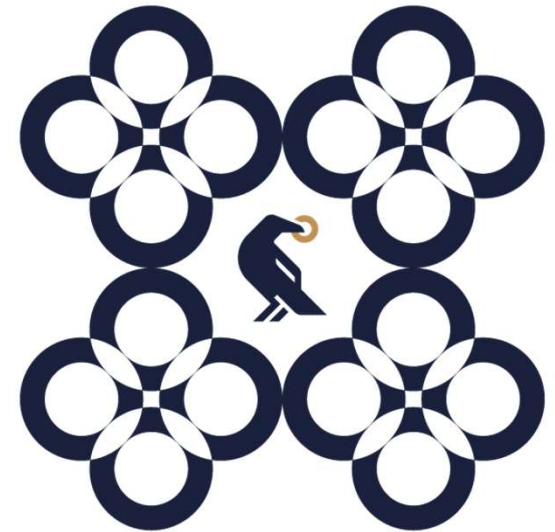
Corvinus University of Budapest, July 8-12, 2024

The conference will also celebrate
Vincent Crawford's 75th birthday

Keynote speakers:

- Paul Milgrom (Stanford University)
- Roger Myerson (University of Chicago)
- Al Roth (Stanford University)
- Eva Tardos (Cornell University)

Website: <https://www.uni-corvinus.hu/ind/cmid/>



Competitiveness Research Center

Attila Chikán (director), Erzsébet Czakó (co-director)



The mission of the Centre is to be an internationally recognized center for academic research on competitiveness, especially on firm competitiveness.

The Competitiveness Research Center (CCR), a research center of Corvinus University of Budapest, has been carrying out research since 1995.

- *Firm competitiveness is embedded into the national competitiveness* ([Chikán 2008](#), 24–25).
- *Firm competitiveness and its assessment by an index* ([Chikán et al., 2022](#))
- *Focus: firm competitiveness and functional areas*

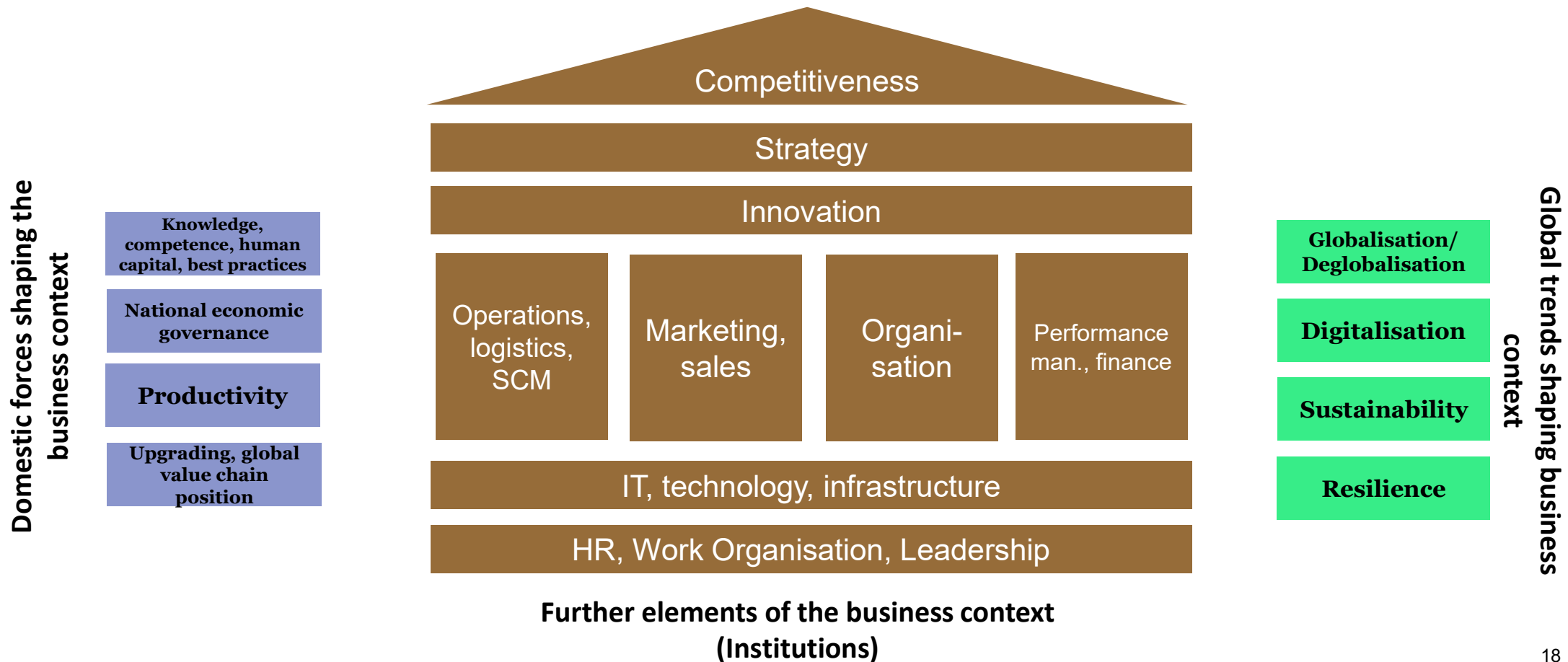
Website: [HU](#), [ENG](#)

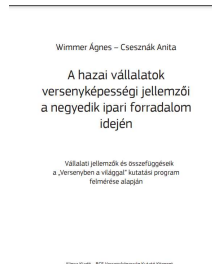
- 1995 – 1997: In Global Competition
- 1999 – 2001: Market and info-com technologies
- 2004 – 2006: Business competences in the era of EU-accession
- 2007 – 2009: Public sphere and competitiveness
- 2010 – 2017: International contexts
- **2018 – 2023: Competitiveness in the advent of the 4th industrial revolution.**

Further details on our [website](#) and in the Budapest Management Review ([HUN](#)).

Focus is on the Firm

Internal topics and embeddedness of the firm into domestic and global context



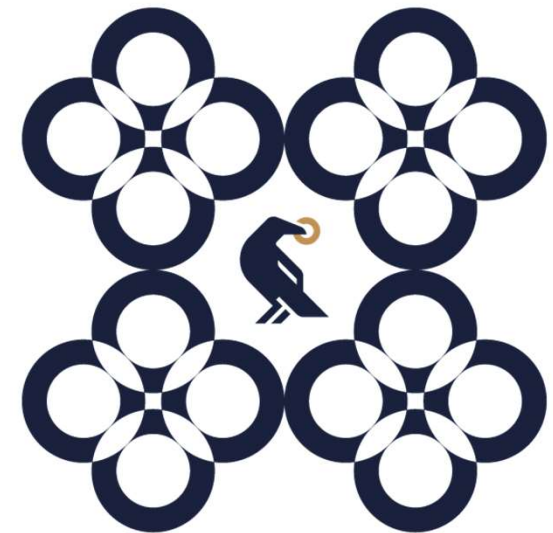
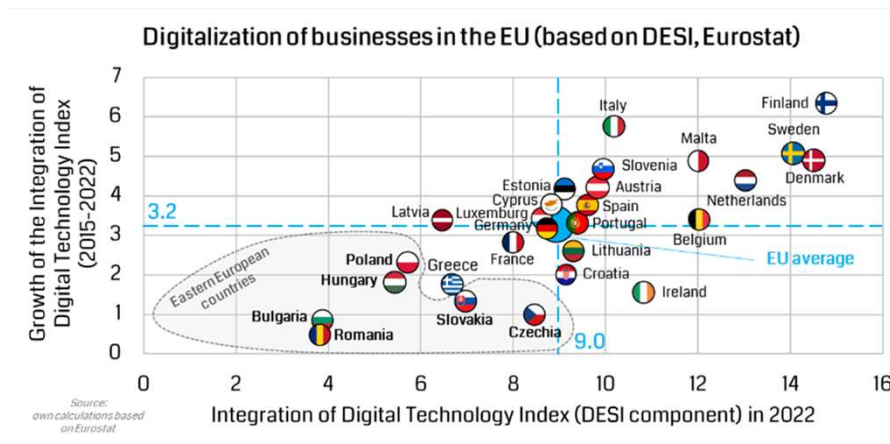


Author(s)	Title	Journal	Link
Chikán Attila, Czákó Erzsébet, Kiss-Dobronyi Bence, Losonci Dávid	Firm Competitiveness: a General Model and a Manufacturing Application	INTERNATIONAL JOURNAL OF PRODUCTION ECONOMICS	https://doi.org/10.1016/j.ijpe.2021.108316
Csiki Ottó, Losonci Dávid, Demeter Krisztina	How to improve firm performance? – The role of production capabilities and routines	INTERNATIONAL JOURNAL OF OPERATIONS & PRODUCTION MANAGEMENT	https://doi.org/10.1108/IJOPM-03-2022-0221
Gelei Andrea, Kenesei Zsófia	Leveraging the potential of a technologically heterogeneous suppliers – a dynamic approach	JOURNAL OF MANUFACTURING TECHNOLOGY MANAGEMENT	https://doi.org/10.1108/JMTM-09-2021-0377
Diófási-Kovács Orsolya, Nagy Judit	Beyond CO2 emissions – The role of digitalization in multi-dimensional environmental performance measurement	ENVIRONMENTAL AND SUSTAINABILITY INDICATORS	https://doi.org/10.1016/j.indic.2023.100252
Kárpáti Zoltán, Ferincz Adrienn, Felsmann Balázs	Relationship between different resource and capability configurations and competitiveness – comparative study of Hungarian family and nonfamily firms	JOURNAL OF FAMILY BUSINESS MANAGEMENT	https://doi.org/10.1108/JFBM-08-2023-0145
Stocker Miklós, Várkonyi Lídia	Impact of market orientation on competitiveness: Analysis of internationalized medium-sized and large enterprises	ENTREPRENEURIAL BUSINESS AND ECONOMICS REVIEW	https://doi.org/10.15678/EBER.2022.100106
Szántó Richárd	Intuitive decision-making and firm performance	JOURNAL OF DECISION SYSTEMS	https://doi.org/10.1080/12460125.2022.2080796
Szukits Ágnes	The illusion of data-driven decision making	JOURNAL OF MANAGEMENT CONTROL	https://doi.org/10.1007/s00187-022-00343-w
Kiss János, Kazainé Ónodi Annamária	What factors influence the innovation activity of companies - the case of Hungary	INT. J. of TECHNOLOGICAL LEARNING, INNOVATION AND DEVELOPMENT	https://doi.org/10.1504/IJTLID.2023.132866

Barriers of digitalisation in Central and Eastern Europe

Krisztina Demeter

- ❖ Find barriers at multiple levels (individual, firm, supply chain, company)
- ❖ Search for best practices to overcome the barriers
- ❖ Use various methodologies to find the relevant variables, antecedents and effects (big databases, case studies, text mining, surveys)



Resilience in the supply chain

Judit Nagy

- ❖ Food Supply Chain Research group
- ❖ Importance of the topic:
 - ❖ Fragile supply chains
 - ❖ Disruptions in the supply chains thanks to natural disaster and geopolitical reasons
 - ❖ Rethinking processes and complexity
- ❖ Possible research topics
 - ❖ Importance of (ISO) standards in building resilience
 - ❖ Role of digitalization in increasing resilience
 - ❖ Food industry as part of the critical infrastructure





**Thank you for
your attention!**

