



EFOP-3.6.2-16-2017-00007

READINESS FOR THE 4TH INDUSTRIAL REVOLUTION IN THE EUROPEAN UNION

3rd workshop in cooperation with the European Association for Comparative Economic Studies

TECHNOLOGICAL CHANGE AND DEVELOPMENT

*4th Central European PhD Workshop
Doctoral School in Economics, University of Szeged*

**University of Szeged
Faculty of Economics and Business Administration**

**5–6 April 2019
Szeged, Hungary
Kálvária sgt. 1.**

SZÉCHENYI  **2020**



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PROGRAMME

5th April 2019 (Aula of the Faculty)

09.00 – 10.00

Registration (Faculty of Economics and Business Administration, Szeged, Kálvária sgt. 1.)

10.00 – 12.15

Plenary session

Welcome address:

Péter Kovács, Dean of the Faculty of Economics and Business Administration

Keynote speakers:

Kadri Ukrainski, *Professor of Research and Innovation Policy (University of Tartu, School of Economics and Business Administration):*

Innovation policy and dynamic capabilities in the public sector: challenges for CEE countries in the context of 4th industrial revolution

Enzo Valentini, *PhD in Political Economy (University of Macerata, Department of Political Science, Communication and International Relations):*

Structural change, robotisation, productivity and labour markets in advanced economies

Hiroshi Tanaka, *Specially Appointed Professor of Economics (Ritsumeikan University, Graduate School of Economics):*

Industry 4.0: View from a Japanese Manufacturing Perspective

12.15 – 13.00

Buffet lunch (Room 007)

13.00 – 15.00

Parallel sessions

15.00 – 15.30

Coffee break

15.30 – 17.30

Parallel sessions

18.00 – Conference dinner: Kiskőrössy Halászcserda (Kiskőrössy Fish Restaurant), Szeged, Felső Tisza-part.

The bus leaves to the Restaurant from the Faculty (Kálvária sgt. 1) at 18.00.

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6th April 2019

09.00 – 10.30

Parallel sessions

10.30 – 10.45

Coffee break

10.45 – 12.15

Parallel sessions

12.15 – 13.15

Buffet lunch (Room 007)

5th April 2019	
13.00 – 15.00 Parallel sessions	
Session 1A – Ceremonial Hall <i>Changes in value chains</i> Chair: Miklós Szanyi	Session 1B – Room 101 <i>New business models</i> Chair: György Málovics
5th April 2019	
15.30 – 17.30 Parallel sessions	
Session 2A – Ceremonial Hall <i>Industry 4.0 and socio-economic challenges</i> Chair: László Dinya	Session 2B – Room 101 <i>Development, de/reindustrialization and investment</i> Chair: Magdolna Sass
6th April 2019	
09.00 – 10.30 Parallel sessions	
Session 3A – Ceremonial Hall <i>Finance and accounting</i> Chair Katalin Antalóczy	Session 3B – Room 101 <i>Technological changes and their perception</i> Chair: Andrea Éltető
6th April 2019	
10.45 – 12.15 Parallel sessions	
Session 4A – Ceremonial Hall <i>Industry 4.0 and economic policy</i> Chair: Beáta Farkas	Session 4B – Room 101 <i>Sectoral changes</i> Chair: Anita Pelle

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5th April 2019				
13.00 – 15.00 Parallel sessions				
Session 1A Ceremonial Hall	<i>Changes in value chains Chair: Miklós Szanyi</i>			
Margherita Russo	<i>University of Modena and Reggio Emilia</i>	Ongoing digital transformations in the automotive supply chain in China, Germany, Italy and Japan: do paces of change matter?		
Béla Galgóczi	<i>European Trade Union Institute, Brussels</i>	Possible effects of decarbonisation on employment across the value chain in the European automobile industry		
Gábor Túry	<i>Institute of World Economics, CERS, Hungarian Academy of Sciences</i>	How does technological transformation change the automotive value chain – consequences for Central European economies		
Katalin Antalóczy – Magdolna Sass	<i>Budapest Business School Centre for Economic and Regional Studies of the Hungarian Academy of Sciences</i>	The potential impact of Industry 4.0 in the pharmaceutical industry: the case of the Visegrad countries		
Session 1B Room 101	<i>New business models Chair: György Málovics</i>			
Róbert Marciniak – Péter Móricz – Máté Baksa	<i>Corvinus University of Budapest</i>	Promotion of an Industry – Trends and Expectations of Digital Transformation in the Hungarian Business Services Sector		
Erzsébet Hetesi – Klára Kazár – Balázs Révész			<i>University of Szeged</i>	The Impact of Using Multiple Channels of Communication on Relationship Success in B2B Marketing
László Dinya – Anikó Klausmann-Dinya				
Margit Tarjányi – Márton Vilmányi	<i>University of Szeged</i>	Differences in Dynamic Relationship Capabilities		

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15.30 – 17.30 Parallel sessions		
Session 2A Ceremonial Hall	<i>Industry 4.0 and socio-economic challenges</i> Chair: <i>László Dinya</i>	
Oldrich Krpec	<i>Masaryk University</i>	V4 countries and MFF 2021-2027: the middle income trap
György Málovics – Zoltán Bajmócy – Judit Gébert	<i>University of Szeged</i>	Industry 4.0: A critical contribution based on the transformative approach to responsible research and innovation (RRI)
Piotr Maszczyk	<i>Warsaw School of Economics SGH</i>	The comparative empirical analysis of the social protection system in selected Central and Eastern European Countries: Emerging Models of Capitalism
Zoltán Fülöp	<i>Corvinus University of Budapest</i>	Can we see the changes caused by digitalization and Industry 4.0 in the occupation structure?
Beáta Farkas – Andor Máté – Tamás Rác	<i>University of Szeged</i>	Drivers of intra-EU mobility and labour market impacts
Session 2B Room 101		
<i>Development, de/reindustrialization and investment</i> Chair: <i>Magdolna Sass</i>		
Miklós Szanyi – Gyula Szabó	<i>University of Szeged, Centre for Economic and Regional Studies of the Hungarian Academy of Sciences</i> <i>University of Szeged</i>	Defining the development potential of countries in East-Central Europe
Ion Imbrescu	<i>West University of Timisoara</i>	Privatization and (de)industrialization
Andrea Szalavetz	<i>Institute of World Economics, CERS, Hungarian Academy of Sciences</i>	Impact of industry 4.0 technologies on the engines of development in Hungary – Some lessons for economic policy
Anita Pelle – Magdolna Sass – Gabriella Tabajdi	<i>University of Szeged</i> <i>Centre for Economic and Regional Studies of the Hungarian Academy of Sciences</i> <i>University of Szeged</i>	European integration and industrial actors' location and investment decisions

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6th April 2019		
9.00 – 10.30 Parallel sessions		
Session 3A Ceremonial Hall	<i>Finance and accounting Chair Katalin Antalóczy</i>	
Zsuzsanna Kovács – István Deák	<i>University of Szeged</i>	Modern accounting information systems
Gábor Dávid Kiss	<i>University of Szeged</i>	Industry 4.0 and Corporate Balance Sheets
Ádám Kerényi	<i>Institute of World Economics, CERS, Hungarian Academy of Sciences</i>	Brave New Digital World? – Financial Technology and the Power of Information
Session 3B Room 101		
<i>Technological changes and their perception Chair: Andrea Éltető</i>		
Aleksandra Grzesiuk – Tomasz Podleśny	<i>West Pomeranian University of Technology in Szczecin</i>	Economic awareness of young Poles: Does open online access to economic information improve economic awareness?
Eszter Megyeri – Gabriella Tabajdi	<i>University of Szeged</i>	Comparison of SMEs and student perception of IR 4.0 importance concerning entrepreneurship
Éva Málóvics – Beáta Kincsesné Vajda	<i>University of Szeged</i>	The effect of changing information technology on doctor-patient communication

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10.45 – 12.15 Parallel sessions		
Session 4A Ceremonial Hall	<i>Industry 4.0 and economic policy</i> <i>Chair: Beáta Farkas</i>	
Andrea Éltető	<i>Institute of World Economics, CERS, Hungarian Academy of Sciences</i>	Industry 4.0 effects on backshoring investments – Hungarian experiences
Olivér Kovács	<i>National University of Public Service; ICEG European Center</i>	Industry 4.0 as a Productivity-Boosterjet in the Visegrad Countries?
Benedek Nagy – Beáta Udvari – Imre Lengyel	<i>University of Szeged</i>	Reindustrialization in Central and Eastern Europe: Revival of the core and periphery division of labour?
Session 4B Room 101	<i>Sectoral changes</i> <i>Chair: Anita Pelle</i>	
Jay Stephen Siy	<i>Corvinus University of Budapest</i>	Sustainability and Business Innovation practices in industry value chains: a travel and tourism perspective
Sarolta Somosi - Gabriella Számfira	<i>University of Szeged</i>	Agriculture 4.0 in Hungary – The impacts of 4th Industrial Revolution on the agriculture of Hungary within the frameworks of Common Agricultural Policy
Beáta Kincsesné Vajda	<i>University of Szeged</i>	Healthcare 4.0 - The role of technology acceptance in improving medical care

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TECHNOLOGICAL CHANGE AND DEVELOPMENT

*4th Central European PhD Workshop
 Doctoral School in Economics, University of Szeged*

Sessions of the PhD workshop

5 th April 2019 13.00 – 15.00 Parallel sessions		
Session 1 – Room 004 <i>Innovation I.</i> Chair: Szabolcs Prónay, PhD (University of Szeged)	Session 2 – Room 410 <i>Finance I.</i> Chair: Péter Halmosi, PhD (University of Szeged)	Session 3 – Room 411 <i>Sectors and sectoral strategies I.</i> Chair: Prof. Urmas Varblane (University of Tartu)

5 th April 2019 15.30 – 17.30 Parallel sessions		
Session 4 – Room 004 <i>Marketing, behavioral economics, regulatory competition</i> Chair: Balázs Révész, PhD (University of Szeged)	Session 5 – Room 410 <i>Macroeconomics I.</i> Chair: Prof. Tiiu Paas (University of Tartu)	Session 6 – Room 411 <i>Sectors and sectoral strategies II.</i> Chair: Prof. Éva Voszka (University of Szeged)

6 th April 2019 09.00 – 10.30 Parallel sessions		
Session 7 – Room 004 <i>Innovation II.</i> Chair: Izabella Szakálné Kanó, PhD (University of Szeged)	Session 8 – Room 410 <i>Finance II.</i> Chair: Andreász Kosztópulosz, PhD (University of Szeged)	Session 9 – Room 411 <i>Macroeconomics II.</i> Chair: Ass. Prof. Diana Eerma (University of Tartu)

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5th April 2019		
13.00 – 15.00 Parallel sessions		
Session 1 Room 004	<i>Innovation I. Chair: Szabolcs Prónay, PhD (University of Szeged)</i>	
Michal Palinski	<i>University of Warsaw</i>	Explorations in Next Generation Internet: Text-mining approach
Péter Füzes – Roland Zs. Szabó – Zoltán Gódor	<i>Corvinus University Budapest</i>	A game changer: exploring and exploiting cloud computing
Mert Mentés	<i>Corvinus University Budapest</i>	Business model of New Business Creation Strategy
Elena Ştiubea	<i>Doctoral School of Economic Sciences, Faculty of Economic Sciences, Oradea, Romania</i>	The sharing economy - an opportunity for the individuals to become entrepreneurs
Session 2 Room 410		
<i>Finance I. Chair: Péter Halmosi, PhD (University of Szeged)</i>		
Balázs Tóth	<i>University of Szeged</i>	Measuring fiscal distress at local municipalities
Dániel Szládek	<i>University of Szeged</i>	The new form of pay-out policy: the emergence and theoretical background of share repurchases
Renáta Janka Kollár-Vizin	<i>University of Szeged</i>	The role of state institutions in the development of credit structure and lending conditions
Session 3 Room 411		
<i>Sectors and sectoral strategies I. Chair: Prof. Urmaz Varblane (University of Tartu)</i>		
Balázs Ács	<i>University of Szeged</i>	New business models on the deregulated coach market in Central Europe
Zeeshan Mustafa – Waqar Ahmad – Abdul Jalil	<i>University of Szeged</i>	The known knowns, known unknowns, and unknown unknowns of re-industrial revolution for fertilizer sector and impact on sustainable agriculture development in Pakistan
Ola Al Jaafreh – Imre Nagy	<i>Kaposvár University</i>	Evaluation of sustainable agriculture by economic, environmental and social indicators in Hungary.

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5th April 2019		
15.30 – 17.30 Parallel sessions		
Session 4 Room 004	<i>Marketing, behavioural economics, regulatory competition</i> <i>Chair: Balázs Révész, PhD (University of Szeged)</i>	
Zsófia Gyulai	<i>University of Szeged</i>	The importance of customer journey mapping in B2B marketing
Kristóf Gyódi	<i>University of Warsaw</i>	The professionalization of Airbnb across Europe
Sevinj Omarli	<i>Corvinus University of Budapest</i>	Tactical marketing decisions of managers in times of crisis - Case study Qatar Airways Company
Ilkin Salmanli – Sevinj Omarli	<i>Szent István University – Corvinus University of Budapest</i>	The impact of country image, country-of-origin image and consumer ethnocentrism on purchase decisions (A study about Azerbaijani Food Company's entry into Hungarian Market)
Session 5 Room 410	<i>Macroeconomics I.</i> <i>Chair: Prof. Tiiu Paas (University of Tartu)</i>	
Sisay Demissew Beyene – Balázs Kotosz	<i>University of Szeged</i>	Testing the Ricardian Equivalence Hypothesis in the Case of Ethiopia: ARDL Co-integration Approach.
Ilona Ida Balog	<i>University of Szeged</i>	Technological change in the System of National Accounts
Timothy Yaw Acheampong	<i>University of Szeged</i>	The 4th Industrial Revolution, the Middle Income Trap Thesis and Technology Nexus
Isaac Kwesi Ampah	<i>University of Szeged</i>	Trade misinvoicing in Ghana and Hungary, the same or different? A comparative study of the primary and manufacturing sector

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Session 6 Room 411	<i>Sectors and sectoral strategies II.</i> <i>Chair: Prof. Éva Voszka (University of Szeged)</i>	
Ramharter Peter M. – Róbert Stefko – Eva Benkova – Martin Steiner	<i>University of Presov in Presov</i>	Small and Medium Sized Enterprises / Consulting Engineers Their actual importance to the economic, business models, restructuring, economic development and the impact of technology changes especially for engineering consultant entities.
Aiman S. Baloch	<i>Warsaw School of Economics</i>	Technology and tourism: accessing the impact of technological change on economic development
Ibrahim Niftiyev	<i>University of Szeged</i>	De-Industrialization Patterns of Azerbaijan: Potential Outcomes of Dutch Disease Syndrome

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6th April 2019		
9.00 – 10.30 Parallel sessions		
Session 7 Room 004	<i>Innovation II. Chair: Izabella Szakálné Kanó, PhD (University of Szeged)</i>	
Tõnis Tänav	<i>University of Tartu</i>	Evaluating the policy mix to support innovativeness in firms: Evidence from Estonian firms
Ainura Shakenova	<i>Kaposvár University</i>	How much potential is intellectual property in case of country with transition economics?
Youjun Shin	<i>University of Tartu</i>	Efficiency of public e-health services
Session 8 Room 410	<i>Finance II. Chair: Andreász Kosztopulosz, PhD (University of Szeged)</i>	
Senanu Kwasi Klutse	<i>University of Szeged</i>	Inflation Forecasting in Developing Economies Using SARMA Models – The Case of Ghana
Bui Thanh Trung – Gábor Dávid Kiss	<i>University of Szeged</i>	The relative importance of monetary policy instruments in Latin America
Ábel Czékus	<i>University of Szeged</i>	Post-crisis trends in taxation – twilight or survival of the models?
Session 9 Room 411	<i>Macroeconomics II. Chair: Ass. Prof. Diana Eerma (University of Tartu)</i>	
Laura Helena Kivi	<i>University of Tartu</i>	Spatial interactions of regional labour markets in Europe
John Kibara Manyeki – Balázs Kotosz	<i>University of Szeged</i>	Income Inequality and Economic Growth: An Empirical Analysis of Kenya
Marcell Zoltán Végh	<i>University of Szeged</i>	Has Macroeconomic Imbalance Procedure managed to reduce imbalances and improve economic recovery in EU countries?

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ABSTRACTS

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3rd workshop in cooperation with the European Association for Comparative Economic Studies

Session 1A

Changes in value chains

Margherita Russo, Department of Economics University of Modena and Reggio Emilia
Ongoing digital transformations in the automotive supply chain in China, Germany, Italy and Japan: do paces of change matter?

The wide literature exploring the impact of the ongoing digital transformation in the manufacturing and services sectors focuses on many diverse aspects: from long term aggregate changes in labour supply and skills to the reorganizations and relocation of the various segments of the supply chain. In order to explore the ongoing transformation, this paper focuses on the internal structure of specializations within the automotive supply chain, generally recognized as one with the highest degree of fragmentation.

The paper addresses the dynamics of the ongoing digital transformations in the automotive industry in China, Germany, Italy and Japan. Building on the results of empirical analyses prepared for the OECD project Digital and open innovation.

With regard to the four countries, the paper briefly presents the structure of the supply chain (segments and types of companies) and the levels of digitization. With regard to the different specializations of the companies in the various segments of the supply chain, several dimensions are examined (according to the availability of comparable information across the different sources) including: Internet of Things connecting devices, Artificial intelligence Machine Learning, Simulation, Augmented reality; Robotics in production and logistics, Additive manufacturing solutions (3D printers in prototypes production and small batches); Human-machine integration; Mobile services and technologies integration in the working environment; RFID data transfer without physical contact; All-time localization through sensors and data transfer; Analytics converting big data in smart data; Cloud computing services providing platform for worldwide access.

Although the automotive supply chain has a digitalization level greater than in other manufacturing industries, there is no alignment of digital transformation along the many specializations within the automotive supply chain and across countries.

Moreover, the paper discusses the complementary change of product, towards the large scale production of electric vehicles.

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The paper highlights the implications of interrelationships in the global value chain in which those countries are located and discusses implications for innovation policy with regard to systemic changes in related systems of transport infrastructures and renewable energy production: their path of development is strongly affected by the pace of changes from which electric vehicles will be produced.

In a nutshell, the aim of the paper is to understand the rationale of the different paces of change of digital transformation in the various segments (and different size of companies) of the supply chain across countries, and understanding its implications, if any, for innovation policy.

Béla Galgóczi, European Trade Union Institute, Brussels

Possible effects of decarbonisation on employment across the value chain in the European automobile industry

With 10 million quality jobs the automobile industry is a major employer in Europe. The industry faces unprecedented challenges in the near future that will re-write its entire business model, will redefine work and redraw its value chains. Managing this change requires innovative approaches from the main actors and new forms of actors' relationships. The paper will focus on the main features of this transformation and will examine actors' strategies in coping with the challenge. Beside a broad-based literature review, this paper will draw upon the findings of a research project currently under way at the European Trade Union Institute (ETUI) consisting of contributions on the European automobile industry, challenges and actors' strategies in the French and German car industry and on the changing role of CEE value chains.

Decarbonisation is driven by climate and environmental regulation at European and national level and by changing consumer preferences. The exit from the combustion engine and the electrification of the powertrain will require different competences, skills and work organisation having also a substantial impact on previously established comparative advantages of nations and manufacturers. Employment forecasts along different scenarios (ELAB study by the Fraunhofer IAO Institute, the study and forecasts by the European Climate Foundation) will be presented.

The digitalisation of both the production process and the product is another driver of the transformation of the automobile industry with massive effects on changing working environments. Intelligent production systems start at the interface between production machines and employees, and in doing so, digitize their communication with other devices, employees, products and even other production sites. In addition to the new automation potential this opens up, it also enables comprehensive control of the production process. This production-side digitization and automation runs parallel to the digitization of the automobile as a product.



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The autonomous and connective (electric) car as a product corresponds to industry 4.0 as a production system.

These shifts will have fundamental effect on employment, in both qualitative and quantitative terms, but will also affect its geographical distribution.

After having discussed these drivers of the transformation, the paper will focus on the role of actors and institutions. Three main aspects will be discussed.

1) The role of actors at different levels will be presented: EU level regulators, national governments, industrial federations and trade unions. The aim is to organise a co-determined transformation process and to avoid operational and regional structural breaks. Pioneering collective agreements and plant or company level pacts will be briefly presented as, eg. the `Project Future` at Daimler and the `Future Pact` at Volkswagen. One common objective of these is to safeguard employment at the core plants of these manufacturers in particular in future oriented strategic areas, preventing also possible relocation and off-shoring options along the value chain.

2) The effects of the transformation and of actors` strategies across cross-border value chains will be examined. The European automobile industry is subject to a high degree of internationalisation, in particular the German manufacturers having had established comprehensive value chains in Central and Eastern Europe (CEE). How CEE subsidiaries are likely to be affected by digitalisation, decarbonisation and the corresponding future strategies of original equipment manufacturers and their main actors? CEE production locations were already on way to upgrade their positions from the earlier low value added, labour intensive specialisation into a higher value added, more technology and skills intensive role in the division of labour. Studies on possible future scenarios will be referred and discussed, among others e.g. Krzywdzinski (2017), Schweiger and Visvizi (2018) including also a questionnaire survey by Szalavetz (2017) with managers of CEE subsidiaries on Industry 4.0 readiness of CEE subsidiaries.

3) Models of capitalism across the value chain in face of the challenges of digitalisation and decarbonisation of the automobile industry will be analysed with two main questions in focus. On the one hand, we examine what effect co-operative models of social market economy in core countries would have in shaping this transformation process and what spill-overs effect this might have on the rest of the value chain. On the other hand, what perspective the low wage based flexibility oriented labour relations in CEE economies can offer to maintain or develop their role in the value chain in face of these epochal transformations. Are the two models in contradiction with each other or might they become complementary under new conditions.

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Gábor Túry, Institute of World Economics, CERS, Hungarian Academy of Sciences
How does technological transformation change the automotive value chain –
consequences for Central European economies

Technological change is on the way in the automotive industry, which is moving towards electromobility. This process raises two important questions. Firstly, what will the global value chain look like after replacing internal combustion powertrains? Secondly, what role will the countries, involved in the 'traditional' automotive production play in the changed value chain?

The main goal of this study is to examine the impacts of the current technological change on the automotive value chain and its effects on the Central European (the Czech Republic, Hungary, Poland and Slovakia) production. The problem is well illustrated by the fact that the Central European countries have significant powertrain production and they have a net production surplus of internal combustion engines compared to their car production. The most important finding of the study is that despite positive improvements related to the technological transition, currently the role of the Central European countries as an assembler is determined by being part of the production of the conventional internal combustion engine powered vehicles. The technological change in the Central European automotive production is based on conventional vehicle assembly. On the other hand, outlook of the region's development is dependent on corporate strategies, how they manage the technological change i.e. how they solve their battery pack production. This also includes a strategy of the automotive manufacturers that defines the spatial pattern of simultaneous production of conventional and electric models.

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Katalin Antalóczy, Budapest Business School - Magdolna Sass, Centre for Economic and Regional Studies of the Hungarian Academy of Sciences
The potential impact of Industry 4.0 in the pharmaceutical industry: the case of the Visegrad countries

The pharmaceutical industry is among the most R&D intensive ones with long tradition in the Visegrad countries, especially in Hungary. The main aim of the paper is (1) to compare the characteristics of the pharmaceutical industry in the four Visegrad countries, (2) to show the specialties of the pharmaceutical value chains, which makes the industry „unique” in terms of the smallness of backward and forward linkages and thus limited impact on the economy, (3) and to show that in such regional and industry circumstances, what the potential impact of Industry 4.0 –related developments can be in the Visegrad countries. We rely on statistical analysis and company interviews and show how the four countries differ in terms of their pharma industry and thus show the impact of Industry 4.0 may differ in the Visegrad countries. Our analysis is unique in the sense that it analyses an industry, which is not analysed yet from the point of view of the potential impact of Industry 4.0 and through our analysis we show how the characteristics of the industries may influence the impact of Industry 4.0 and what the consequences for economic policy can be.

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Session 1B
New business models

Róbert Marciniak – Péter Móricz – Máté Baksa, Corvinus University of Budapest
Promotion of an Industry – Trends and Expectations of Digital Transformation in the Hungarian Business Services Sector

Expected effects of the 4th Industrial Revolution has been attracting an increasing attention of researchers in economics, sociology, and organization studies. A critical combination of information technology, biotechnology, and robotics seems to be the most important driving force for the revolutionary changes around and ahead of us. Although less implied by the umbrella term 'Industry 4.0', digital transformation and automation are also substantial sources of competitive advantage for companies in the service sector. In this paper we explore the current trends of and future expectations for digital transformation projects in Business Service Centers (BSCs) in Hungary. We carried out fifteen interviews with senior technology experts and executives in three Hungarian based BSCs of multinational parent companies to examine individual transformation projects. We also used quantitative data from large-scale surveys on the sector to get an overview of general practices. We examined the use of advanced technologies like robotic process automation, predictive analytics, chatbots, and artificial intelligence. We found that BSCs had mostly automated massively repeated processes and that this automation had liberated employees for more creative tasks. Consequences of this transition are threefold: (1) BSCs can reinforce their position as business partners of their global parents, (2) creative tasks are more attractive for prospective and current employees in a labor market characterized by a shortage of suitable workforce, (3) employees usually do not fear of the possibility of job loss due to automation and digital transformation.

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Erzsébet Hetesi – Klára Kazára – Balázs Révész, University of Szeged
The Impact of Using Multiple Channels of Communication on Relationship Success in B2B Marketing

Information technology affects not only our everyday life, but it greatly influences the business buying process as well. One of the most important effects is that customers can easily interact with suppliers across multiple touchpoints, thus, they can combine personal and information technology based channels of communication. In this paper we investigate the role of personal and information technology based communication methods in business-to-business marketing. In particular we were interested in how the usage of information technology affects the importance of the traditional personal relationships in business markets. We also analysed how the usage of both encounter types influence trust, commitment and loyalty in business-to-business relationships. The results from our combined qualitative and quantitative research program indicate that while information technology transforms the methods of interaction in business relationships, personal relationships still keep their importance. The social embeddedness of economy still seems to exist in our post-modern, technology driven world. The interpersonal relationships and networks of these relationships still seem to play an important role in business life. Based on our results we believe that both (face-to-face and information technology mediated) types of encounters can be effective.

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**László Dinya, University of Szeged – Anikó Klausmann-Dinya, Eszterházy Károly University
Managing complexity in the era of Industry 4.0**

Complexity is one of the biggest barriers to success in organizations, including the business or nonbusiness sectors too. Despite this fact there is very few research into the causes and consequences of this rapidly growing problem in the era of Industry 4.0. Similarly there are very few practical information that provide actionable advice on how management in organizations can attack this problem.

Internal complexity challenges like economic turbulence, understanding changes in customer needs, coping with economic crises, successfully launching innovative new products or services, dealing with regulatory changes, and finding and keeping talent are all big issues of management. In combination the internal complexity to a complex competitive external environment management of organizations need to continually respond to in order to succeed.

We define complexity as the number of components in a system plus the variety of relationships among these components plus the pace of change of both the components and the relationships.

Larger systems are often more complex – but they may just be more complicated if they behavior is unpredictable. Based on the database of the Global Entrepreneurship Index (GEI) we compared the EU-member countries (especially Hungary) how prepared they are for managing growing complexity. Simplicity in business exists when we have exactly the right number of essential components and connections to achieve a successful result – no more, no less. That means everybody has to find an optimal level of complexity / simplicity, so we could talk about good or bad complexity / simplicity, and the level of them is changing continuously.

Investigating the countries we have identified three clusters of them having different management challenges: balanced, flexible and vulnerable countries concerning their endowments in facing and managing the growing complexity. Hungary is among the last ones.



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Margit Tarjányi – Márton Vilmányi, University of Szeged
Differences in Dynamic Relationship Capabilities

Relationship between organizations is a regular topic of both relationship marketing, relationship management research and strategic management research. Constantly high interest is not surprising. The identification of change patterns in relationships of organizations can help in the explanation of several business phenomena.

In our study, we present the results of a questionnaire survey. Our main question is whether the development of cooperation behaviour of business enterprises could depend on the size of enterprises.

For our research we used the resource based view and the theory of dynamic capabilities. Our results confirm the relevant starting points of the approach to dynamic capabilities, while enriching at some points in the light of Hungarian specificities.

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Session 2A

Industry 4.0 and socio-economic challenges

Oldrich Krpec, Masaryk University

V4 countries and MFF 2021-2027: the middle income trap

In May 2018 Commission communicated its position on Multiannual Financial Framework (the EU budget) for 2021-2027. While the overall volume is to remain the same (compared to 2014-2020), there are important shifts in priorities. The priority is clearly given to research and innovations (with strong accent climatic change, also trans-European infrastructure and digital Europe). The cuts are to be in traditional policies: structural fund and cohesion policy and common agricultural policy. Even inside the cohesion package there is shift from general support of less developed regions (i.e. lower income member states) towards regions with relatively lower GDP per capita, but at the same time affected by other negative conditions such as high unemployment and inflow of migrants. It is clear, that the consequence of new budgeting will be diversion of flows from Eastern European countries to Southern Europe. Because of better than average economic growth in V4 in past few years (and high employment) it is fair that the inflow from structural funds will be limited (because of cap, “only” by 23-24%). Of course, this relatively positive results are mostly the result of bad performance of South Europe, the catch-up with EU’s economic core is still weak if any. There are important issues – especially the subordinate position of V4 in international division of labor. Also the GDP is somewhat inflated (compared to the actual consumption) because of the foreign control of manufacturing and financial sector, resulting in strong outflow of profits. It is therefore questionable, if the V4 states truly reached the innovation driven stage of development (category used by Global Competitiveness Report). Even if so, the V4 countries are spending lower proportion of its GDP for RD than rest of EU (1.16 percent compared to 1.96 in EU28 and 2.34 in OECD). Given the difference in GDP between V4 and most developed countries, the RD investments per capita are several times lower. Accepting the perspective of Commission applied in MFF 2021-2027, for the future convergence of V4 there is less need for development funding (structural funds) as more appropriate are to be the strengthened funds for research and innovation. The issue we would like to stress is the very low ability of V4 countries to compete for the RI funds with other member states. The V4 countries were not very successful in 7th framework programme, and were even less successful they were in Horizon 2020. To be sure, less successful not only in comparison to UK, Germany, Benelux, Scandinavia or Austria, but also compared to Southern Europe. The net EU contribution to V4 (64 million inhabitants) research funded by Horizon 2020 was 3.7 times lower than in the case of Spain and only little more than in the case of Greece. In the light of the technological change (industry 4.0; green Europe) the challenges for V4 convergence are possibly bigger than ever.

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György Málovics – Zoltán Bajmócy – Judit Gébert, University of Szeged
Industry 4.0: A critical contribution based on the transformative approach to responsible research and innovation (RRI)

Industry 4.0 is mostly analyzed within economics regarding its effects on productivity, competitiveness and economic growth. Within this relation, it is a promising process contributing to (economic) development. However, taking a different approach – a wider informational basis – to development modulates this picture. Main characteristics of the 4th industrial revolution – e.g. artificial intelligence, big data – are not without potential contradictions concerning future environmental and well-being (quality of life) effects. Present paper aims to contribute to the debate around industry 4.0 based on the concept of responsible research and innovation (RRI), and especially its transformative approach. We show that under requirements of (1) strong environmental sustainability and (2) wider concepts of well-being including also aspects of human life other than consumption opportunities, industry 4.0 is indeed a process full of potential future contradictions. We argue that social research (including well-being and sustainability orientated economic research) and policy should focus on (de)centralization and control over new technologies beside mere productivity effects in order to gain a more holistic understanding on the future well-being effects of industry 4.0.

Piotr Maszczyk, Warsaw School of Economics SGH
The comparative empirical analysis of the social protection system in selected Central and Eastern European Countries: Emerging Models of Capitalism

The aim of this paper is to analyse the institutional architecture and the level of similarity between social protection system in 11 new EU member states from Central and Eastern Europe and chosen Western European countries, representing four different models of capitalism identified by Amable. In selected institutional area, a comparative analysis was performed and based on it, similarity hexagons were created. They serve the purpose of comparing CEE countries to Western European countries of reference. Dynamic approach adopted in this study – two different time periods were compared – allows examining the path dependence and evolution of institutional architecture over the time. The analysis indicates that in 2014 in the area of social protection almost all CEE countries were the most similar to the Continental model of capitalism represented by Germany, with the exception of Latvia and Romania. Nevertheless, the variety of results for the individual variables (especially input and output variables) and substantial changes between 2005 and 2014 proof also that the model of capitalism prevailing in Central and Eastern Europe in the area of social protection system is evolving constantly at a very fast pace and thus currently may be called a hybrid or even patchwork capitalism.





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Zoltán Fülöp, Corvinus University of Budapest
Can we see the changes caused by digitalization and Industry 4.0 in the occupation structure?

Nowadays industry 4.0 becomes widely known. This goes beyond the industry, because it also has a great impact on services. Technological change and digitization affect the labour market. Labour demand is getting more transformed, and other kinds of skills become important. In the near future, there will be a demand for knowledge that we do not know yet. There is a new phrase for this phenomenon: Work 4.0 (FMLSA, 2017)

In the near future many of the occupations are likely to disappear because of technological changes according to some researches. (Frey-Osborn [2013]; Nábelek [2016]; Arntz [2016]; Achemoglu [2017], etc.) For these changes we have to know which occupation would be needed, and which not, and what education system and qualification would help.

Examining future global changes by using only past data is not always successful, but for the first step we have to do it, to get a clear picture. It can set a direction for further researches or just simply give a picture about the direction of the changes in the occupation structure.

The Nemzeti Foglalkoztatási Szolgálat (NFSZ) (Hungarian National Institute of Employment) started to gather data through the National Tax and Customs Office about the relation of occupation and qualification. The Hungarian Bureau of Statistics validate and clear this data, so the final output can be reliable.

The datas can be organized in a matrix such as there is two dimensions: 1. the mostly used sectors; 2. occupations: FEOR(08) codes (Foglalkoztatások Egységes Rendszere – Uniformed System of Employment [KSH, 2018]).

In the first step my contribution is to give an overlook about this system, and about what is the shift in the Hungarian occupations from 2010 to 2016.

In the changes of the ratio of different occupations in each industry, can have a message. More knowledge intensive or less, more digitalized skills needed or not, etc. It can have a message, if the industry 4.0 has a significant effect yet, or not.



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**Beáta Farkas – Andor Máté – Tamás Rácz, University of Szeged
Drivers of intra-EU mobility and labour market impacts**

Free movement of labour is a cornerstone of the European integration architecture, which has been challenged since the Brexit referendum in 2016. In economic integration theory the drivers and impacts of free movement of labour is built on neoclassical theory. In the literature on migration it is well-known that cross-border mobility is a much more complex phenomenon than it is reflected in an equilibrium model. In EU context different patterns of intra-EU mobility can be outlined (north-south, east-west), the problems of brain drain, brain waste emerge etc. We started research to identify the conditions for sustainable free movement of labour. The first, very preliminary results suggest that the increasing rate of adjusted gross disposable income of households per capita of hosting and receiving countries may diminish the dynamics of emigration rate. Further research is necessary to confirm that free movement of labour is sustainable in an economic region of large wage differences without influx of labour force which trigger economic and social problems in both the hosting and receiving countries. A new, more comprehensive approach is inevitable because current literature (with very few exceptions) pays attention only to the interests of receiving countries and short run processes and neglects the interests of hosting countries and long run, demographic aspects.

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Session 2B

Development, de/reindustrialization and investment

Miklós Szanyi, University of Szeged, Centre for Economic and Regional Studies of the Hungarian Academy of Sciences – Gyula Szabó, University of Szeged
Defining the development potential of countries in East-Central Europe

Many economists and economic historians believe that economic development is straightforward and has a „natural path” that can be followed by any country. From Karl Marx to Walter Rostow and beyond theories of development trajectories were developed on the basis of fairly different values and logics. More currently, international comparisons done by for example the IMD World Competitiveness Yearbook picked up the idea again, when talking about subsequent phases of development, which were based on various kinds of natural and human resources and innovation. But the idea of linear development has also been a main assumption of the neoliberal growth agenda pursued by international advising community. Yet, not many success stories of advance and change into higher development brackets have been evidenced in modern (post WW II) world economy. The theories of economic convergence also switched from the logical absolute convergence issue (based on basic assumptions of classical economics) to conditional convergence. This later concept suggests different natural development trajectories for the countries. In line with the varieties of capitalism (VoC) concept we believe that certain groups of countries may have rather similar development trajectories, but differences among these groups may be significant. Unfortunately, the VoC literature could not yet develop conclusive evidence on the country group of East-Central Europe. It is not clear whether it is a separate development entity or the countries can more likely be subordinated to the existing European varieties of capitalism.

In this study we would like to provide a new piece of puzzle to this picture. We will compare the historic development patterns of the countries in this region to the economically advanced part of Europe. This exercise is based on the Maddison data base. We would like to set up trend lines of relative development level of the mentioned countries: the natural development paths defining the potential target levels of convergence. We will also argue, that leapfrogging may become possible, but this opportunity crucially depends on a few conditions. A relatively high level of development is required (cca 60 % of advanced countries), concerted national efforts are necessary to not only establish examples of national champions in technology-driven, internationally competitive markets, but provide background for sustainability of these branches, steady inflow of capital, technology and know-how (knowledge) is necessary to give boost for development.





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Our previous research on increased state involvement revealed that emerging patterns of state capitalism in the region does not create suitable environment for such extraordinary catch-up process. On the contrary, it is very likely that the region will not be able to launch the innovation driven phase of economic development but will stay in the middle income trap.

**Ion Imbrescu, West University of Timisoara
Privatization and (de)industrialization**

The road to capitalism represented an interesting challenge for the countries that experimented a highly-centralized society. One of the principal vehicle on this road was privatization of economic enterprises and the characteristics of this vehicle were very important for the speed of attaining such a goal. I will try to describe the privatization processes in Romania and how these influenced the deindustrialization of a country where industry represented the main objective of former communist regime and generated the conditions for a reindustrialization based on different pillars.

**Andrea Szalavetz, Institute of World Economics, CERS, Hungarian Academy of Sciences
Impact of industry 4.0 technologies on the engines of development in Hungary – Some lessons for economic policy**

The paper investigates whether digitalisation transforms the traditional FDI-based engines of development in Hungary. We contrast the findings of the engineering literature discussing the specifics of digital technologies in manufacturing, combined with those of the economics and management literature discussing the economic impact of digitalisation with the results of in-depth interviews conducted at nine manufacturing companies operating in Hungary and with additional secondary evidence describing corporate experiences with digital technologies. Although the results of the surveyed success stories suggest that

- (a) the diffusion of digital technologies has started in the Hungarian manufacturing industry, and also at domestic-owned digital pioneers;
- (b) investments in digital technologies have had straightforward beneficial effects: corporate performance improved, the knowledge-intensity of their activities increased, and the surveyed firms could upgrade their activities;
- (c) the negative effects of digitalization discussed in the literature (technological unemployment, production reshoring) have not materialised yet,

it is argued that the micro-level experience of some digitalisation forerunners cannot be generalised: optimistic macro-level conclusions are unfounded. Moreover, some weak signals of our corporate interviews substantiate what is predicted in the literature. These weak signals indicate that digitalisation will, indeed, transform the engines





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of growth and catching up, disrupting the FDI-based development trajectory Hungary has so far followed. The paper calls for economic policy making more efforts to improve Hungary's locational advantages.

Anita Pelle, University of Szeged – Magdolna Sass, Centre for Economic and Regional Studies of the Hungarian Academy of Sciences – Gabriella Tabajdi, University of Szeged
European integration and industrial actors' location and investment decisions

The system change in Central and Eastern Europe (CEE) has meant the initiation of a new era in many respects. As for industries, the possibility to attract foreign direct investments in order to enhance manufacturing facilities was an exceptional one. Location and investment decisions were made with the prospect of these economies becoming members of the European Union (EU) and thus the single market. The developments in the sector were beneficial to all parties. However, compared with the early times, the circumstances have substantially changed. The CEE region has kept most of its competitive advantages but the relative positions of these countries have changed. Most lately, shortage of labour has appeared as a new challenge. Moreover, the nature and scope of industry itself is under fundamental change as well: automatisisation, digitalisation, and robotisation, combined with new needs (e.g. environmental sustainability, energy efficiency), are all shaping the environment of industrial actors' location and investment decisions. What role is the EU playing in the current industrial realities? What chances do EU member states have as existing and potential locations for industrial investments? How is automatisisation, digitalisation and robotisation influencing the EU's and its member states prospects and positions? We aim at discussing these issues through the case of the automotive industry.



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Session 3A
Finance and accounting

Zsuzsanna Kovács– István Deák, University of Szeged
Modern accounting information systems

Accounting information systems have been used to support external and internal stakeholders' decision making for several centuries. However, during the last decades such underlying changes occurred in our business environment that will not leave the current accounting paradigm unchanged. Standard-setters came up with a new Framework for the Preparation of Financial Statements. Continuous digital communication with the stakeholders is evolving and voluntary non-financial reporting is gaining prominence. These challenges are leading to the paradigm shift that has been anticipated by professionals for several years now. This paper aims to review the literature related to the most challenging phenomena and dynamic changes of the accounting information systems.

Gábor Dávid Kiss, University of Szeged
Industry 4.0 and Corporate Balance Sheets

Increased corporate activities increased the size of the balance sheet due to asset accumulations in the past - with financing pressure on the liability side as well. However, some techniques allow to bypass this behavior: outsourcing relocates some of the assets to specialized subcontractors (as it happens in the case of cloud-services or sharing economy); or the asset is flexibly available and maintained via full service financial lease contracts; or some equipment became obsolete do to 3D printing with the decrease in the production time as well; and securitization is similar for the banking system.

This study will analyze the impact of this developments on corporate valuation trough simulations and sensitivity analyses. Simulations are focusing on the transitions of the model-companies after the applications of upper techniques under discounted cash flow approach.



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**Ádám Kerényi, Institute of World Economics, CERS, Hungarian Academy of Sciences
Brave New Digital World? – Financial Technology and the Power of Information**

In this paper we focus on the development of FinTech, how is it evaluated and managed in selected areas, in China, in the European Union and in Hungary. Some of the pertinent questions in this field are the following: How can regulators keep up with the rapid pace of development? Can regulation be based on a precise definition and can a level playing field be ensured between traditional banks and FinTech start-ups? What are the risks? How can they be handled by supervision and regulation? We can conclude that FinTech is in the initial phase of a "revolutionary" process, and the definition of this phenomenon is broad and changing. Regulators and supervisors must influence the conditions in a way that a level playing field and risk assessment should be the same for traditional banks and FinTech companies. All of the actors have responsibility, including central banks, regulators, supervisors, incumbent banks, consumers and FinTech companies. Information is power, and several economists claim that digital is the new normal. In our paper we partly justify the first part of the sentence and we put a question mark at the end of the second part.

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Session 3B

Technological changes and their perception

Aleksandra Grzesiuk – Tomasz Podleśny, West Pomeranian University of Technology in Szczecin

Economic awareness of young Poles: Does open online access to economic information improve economic awareness?

Economic awareness of young Poles is rather medium. In self-assessment research, respondents declare rather low economic knowledge. However, in economic knowledge test, their real knowledge is higher. Despite this, the observed growing complexity of economic environment raises the question about preparing the society for changes that are dynamic in this environment, especially as a result of technological changes. The author analyses a number of areas of change caused mainly by the Internet and digitization of the economy, which have an influence on the behaviour of individuals. It is expected that the dynamics of these changes will increase in the near future, which will additionally complicate the rules of the market and the situation of individual clients. To be aware of market participants, they must have economic knowledge. The question posed by the author is whether open access to information (online access) raises the level of this economic knowledge?

Eszter Megyeri – Gabriella Tabajdi, University of Szeged

Comparison of SMEs and student perception of IR 4.0 importance concerning entrepreneurship

The new Industrial revolution titled IR 4.0 is embraced by the academics and practitioners. However, the business readiness to meet the changes of the 21st century shows us a very diverse landscape. The most responsive players are progressive companies who must deliver a new way of thinking, creating and operating to stay competitive. In our research we selected to analyze the perception of these development from the point of view of companies and students who likely to generate the next new waves of innovation, technology orientation and value creation. In our study we investigate the general perception of being an entrepreneur in Hungary through the eyes of economic and business students with a special emphasis on the perceived impact of IR4 on entrepreneurs. We would like to understand how the new generations perceive entrepreneurship under the pressure of IR 4 developments. In parallel, we approached Hungarian SMEs measuring their understanding and weighing of IR4 development directions with their impacts on their own businesses. Our aim is to identify links, dependencies and gaps between SMEs who are partially involved and impacted by IR4 challenges versus leading players of IR4 living the opportunities of the new world.

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Éva Málovics – Beáta Kincsesné Vajda, University of Szeged
The effect of changing information technology on doctor-patient communication

Information technology is changing rapidly worldwide and so in healthcare. The digital revolution will have a huge impact on how physicians interact with patients. The Internet has become a powerful healthcare tool for many people. This will have an important effect on doctor-patient communication, and the transformation of these relationships has become a fundamental question. Because of these changes an e-patient movement has evolved. This process requires a significant change in the attitude of patients as well as physicians. We conducted in-depth interviews with four highly educated patients with serious illness and with three doctors. We used the grounded theory method to discover the characteristics in the doctor-patient communication. Our results show that some elements of becoming an e-patient appeared on the patient side, but the habitual barriers of paternalistic doctor-patient communication overwrite these efforts on both sides.

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Session 4A
Industry 4.0 and economic policy

Andrea Éltető, Institute of World Economics, CERS, Hungarian Academy of Sciences
Industry 4.0 effects on backshoring investments – Hungarian experiences

The economic literature on outsourcing has been abundant since decades. After the crisis of 2008 parallel with the re-industrialization and competitiveness discourse, the topic of reshoring also was raised in the EU and in the USA. The paper clears the definitions of reshoring, backshoring and nearshoring and enumerates the possible motivations for them (like higher labour or transport costs than previously expected, strategic decision, insufficient quality). A new motivation can be the spreading automation, robotisation (parts of Industry 4.0 concept) in the global production. Regarding the fact that the CEE countries are highly integrated into the global production chains, this can be relevant for them. Advanced robotics will increasingly allow for the substitution of labour, thus a wave of backshoring can take place from low-cost labour intensive countries towards developed, previously investor countries. Automation and robotisation is applied most intensively in automotive, electronics sector and certain other fields (or tasks) where foreign investment is significant in Hungary. Based on these considerations the paper treats on the one hand the backshoring from Hungary. On the other hand, nearshoring to Hungary from far-East countries is also possible in certain sectors. Apart from theoretical writings on reshoring, empirical evidence is not abundant, and the proved correlation with robotisation is scarce. The paper summarises these empirical studies in a targeted literature review and recent trends are mapped based on press information and interviews. The major conclusion is that up till now backshoring from Hungary because of Industry 4.0 is not a massive phenomenon, however certain country-specific characteristics (eg. labour shortage, legal instability) can change this on the longer term.

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**Olivér Kovács, National University of Public Service; ICEG European Center
Industry 4.0 as a Productivity-Boosterjet in the Visegrad Countries?**

With the dawn of Industry 4.0, its productivity-boosting impact appears to be comfortably ensconced both in the media and in the scientific community. Still, our paper is to portend a rather dismal prognosis by outlining big Inertia Forces (IFs) hindering the power of Industry 4.0 in reviving productivity growth in a more spectacular way. After applying a complexity view to the development of Industry 4.0 in deciphering the major IFs, the paper draws some lessons for theorists and economic policy practitioners in the interest of a value-congruent development of Industry 4.0.

**Benedek Nagy – Beáta Udvari – Imre Lengyel, University of Szeged
Reindustrialization in Central and Eastern Europe: Revival of the core and periphery
division of labour?**

Recently reindustrialization gained focus in developed countries, as an economic policy response partly to the crisis of 2008, and partly to the technological transformation related to the fourth industrial revolution and structural change. According to the spatial core-periphery model of the new economic geography when firms are relocating from the core to the periphery, the core experiences deindustrialization while simultaneously reindustrialization occurs at the periphery. We study 10 Post-socialist EU member states and the EU15 to see whether such processes can be identified and a new division of labor is forming within the EU. The basis of our analysis on reindustrialization is the change in gross value added and the number of employees in manufacturing in the period between 2000 and 2017. The data show that most of Western Europe is still characterized by a process of deindustrialization; while in the majority of Central and Eastern European countries experience reindustrialization in terms of rising manufacturing employment. The evolution of the manufacturing sector in Hungary resembles more to that experienced in the EU15 countries than that of the PS10 countries.

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Session 4B
Sectoral changes

Jay Stephen Siy, Corvinus University of Budapest
Sustainability and Business Innovation practices in industry value chains: a travel and tourism perspective

Tourism serves as the lifeblood of the Hungarian economy by generating business activity and employment in both the formal and informal sectors of the society. Most foreign and domestic tourists travel by land but it is the air travel sector that experienced rapid growth in recent years with the entry of low cost carriers in Budapest and Debrecen despite the closure of Malev Hungarian Airlines in 2012. With their innovative business models, low cost carriers such as EasyJet and Ryanair are crucial to the continued growth of air passenger numbers and the tourism industry as a whole. At the same time, these firms are expected to be role models in adopting environmentally sound business practices and in leading initiatives on sustainable tourism. Following a comparative research design, the paper uses the case approach to qualitatively study how EasyJet and Ryanair balance sales and profit growth and their societal roles. The results show that the companies made innovative changes in their operational processes to minimize carbon footprint while maintaining sales and profit growth. However, both firms lacked industry initiatives that outline how going green in the tourism value chain can have a profound and sustained impact on the environment. There is also a need for more inclusive strategies that detail how stakeholder participation and empowerment are helping firms achieve their societal roles in a more meaningful way, going beyond promotional tie-ups and sponsorships in tourism campaigns.

Sarolta Somosi – Gabriella Számfira, University of Szeged
Agriculture 4.0 in Hungary – The impacts of 4th Industrial Revolution on the agriculture of Hungary within the frameworks of Common Agricultural Policy

The impacts of the so called 4th industrial revolution, that is considered a “general purpose technology”, do not appear only in the manufacturing sector or in the increasingly ICT-intensive services sector. The agriculture, which is using manufactured inputs in more and more automatized factories and which relies highly on technology in its basic activities also, goes through remarkable changes recently.

Precision farming (1), optimized usage of scarce inputs (2) and so reaching a more economy and ecology-friendly (sustainable) farming system (3) are all the potential positive outcomes of the technological development of industry 4.0 taking place in agriculture.

Our main aim is to find what is the position of Hungary in this field, whether there are any





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obstacles in this process. Is the European Union's Common Agricultural Policy and, due to its future changes, Hungarian agricultural policy about/close to handle this challenge or the actors with the aim of developing need to go to the financial market? Are the Hungarian agricultural workforce and farmers ready to make this step? Do the farmers face any difficulties like the shortages in capital investments or maybe rather the lack of skilled workforce is what determines their future possibilities?

Beáta Kincsesné Vajda, University of Szeged
Healthcare 4.0 - The role of technology acceptance in improving medical care

Being an updated concept of smart production as well as the next stage in the digitalization of productions and industries (Neborachko et al 2018), industry 4.0 clearly plays an essential role in defining the future of the medical industry. With an increasing emphasis on technological and economic performance, there is an ever-growing need for patient-centeredness which can be addressed by innovations (like wearable technology or mobile applications) that create a new link between individuals and service providers and thus improve information delivery and the process of care-giving. The success or failure of a specific technology however is highly affected by individuals' adoption of technology, and although technology acceptance is a widely researched topic in general, the specific context of healthcare can be considered a relatively new area (Rahman et al 2016).

This paper aims at analysing the role of the 4th industrial revolution and the readiness of the industrial actors; users and regulators in creating a more patient-centred healthcare industry, with a particular attention to chronic disease prevention and management in Hungary.



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ABSTRACTS

TECHNOLOGICAL CHANGE AND DEVELOPMENT

Session 1

Innovation I.

Michal Palinski, University of Warsaw

Explorations in Next Generation Internet: Text-mining approach

The major aim of our analysis is to identify key technologies that will likely determine the development of the internet in the years leading up to 2025. The methodology employed was fine-tuned to specifically focus on the social aspects of technological change, giving priority to technologies and applications that have the ability to significantly influence social relations. Our forecasting exercise is based on the analysis of information stemming from five important stakeholder communities: journalists covering technology news, social and STEM scientists, Meetup communities, Wikipedia and Reddit. Five datasets have been prepared using webscraping and data retrieval via API: online tech media (140k articles), working papers on computer science and working papers on social sciences (770k papers), Reddit comments (1.2m), Wikipedia edges (100k) and Meetup groups (100k). In the case of academic sources we opted to look mainly at working papers were rather than journal articles because of the lengthy publication process in the scientific journals which would hinder the identification of the recently trending issues. The data has been collected for a period of 27 months (01.2016-03.2018). Besides article and working paper metadata (name of the author, publication date etc.), the plain text of the media articles have been collected, and the abstracts of the working papers. Our analysis consists of three main parts: (1) trend analysis, (2) co-occurrence analysis and (3) issue mapping. Trend analysis is based on the change of frequency of appearances of unigrams and bigrams in the collected texts using OLS regression. Co-occurrence analysis explores the relationship between topics identified via trend analysis. In the Issue mapping exercise we classify our sources in two dimensions EU based vs US based and concerning social issues vs concerning technology. We have identified around 20 thematic clusters of technologies and social issues likely to drive the future of the internet in the immediate future. Furthermore, our analysis suggests that Europeans are more concerned about the social aspects of new technologies. Using ACM repository and Meetup data we have conducted the landscape mapping exercise. Deploying network analysis we have examined collaboration between business and academic institutions in the fields vital from the NGI perspective e.g. AI and blockchain. Keywords: technology forecast, text-mining, next generation internet

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Péter Füzes - Roland Zs. Szabó – Zoltán Gódor, Corvinus University Budapest
A game changer: exploring and exploiting cloud computing

Even Fortune 500 firms can disappear quickly because many of them fall into an exploitation trap. Examples show that certain organizations – that manifest ambidextrous features – can avoid the exploitation trap. But, how can they do it? Authors tracked the digital transformation of a Fortune 500 company in order to understand the strategic and organizational challenges and solutions to become resilient and prosperous. A cutting-edge example is shown in the paper about how an industry leader can exploit traditional and explore and exploit new industries and markets at the same time. The Authors found that shaping an industry needs a strong top-down leadership, and strong alignment between markets, strategy and the configuration of the firm.

Keywords: ambidexterity, change management, cloud computing, business model

Mert Mentés, Corvinus University Budapest
Business model of New Business Creation Strategy

It is difficult to create a successful new business just by developing a new product because of the immediate threat of global imitation and price competition. Therefore, this thesis considers differentiation via a more complete business model. Imitation becomes difficult when what differentiates one business from another is the entire business model. This thesis gives special consideration to the platform business model. This is a business model of the ecosystem type. In rapidly changing management environments, the most desirable strategy for a company to pursue is one that capitalizes on the strengths of various other companies while also concentrating on the company's strength. The question arises, however, of how the platform business model is developed. A company does not merely begin offering products for sale. Various companies should be consulted, and win-win relationships must be developed. This thesis uses a case study to explore the success factors that are key to the development of new businesses via this type of business model. The innovation studied is Felica, a Japanese product made by Sony. In the Felica case study, the product was not sold as a single electronic part, and the platform business model was used. Network externality was essential, and innovation spread as a result. A corresponding framework for using the platform business model to succeed can be summarized using the following equation: “Openness” x “Integration capability” x “International standardization”. It is thought that a new business's chances of success can be increased using the framework mentioned above.

Keywords: New business creation, Platform business model, Open innovation, Product development strategy, Case study

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**Elena Ştiubea, Doctoral School of Economic Sciences, Faculty of Economic Sciences,
Oradea, Romania**

The sharing economy - an opportunity for the individuals to become entrepreneurs

The phenomenon of the sharing economy is a relatively new one, emerged as a result of the development of the technological field, but also of the changes in people's consumption behaviour. The collaborative economy is a way to stimulate entrepreneurship and to open new horizons for ordinary people. This type of economy can stimulate people with different levels of training and bring them into the economic market much easier, thus contributing to economic development. This creates a system that brings benefits to both people and the economy. Access to the collaborative economy is driven by the development of technologies, also, through the development of sharing economics new values are created. People use goods and services together, through which consumption costs are reduced. This article wants to highlight the way in which the sharing economy can make ordinary people become successful entrepreneurs, which are the opportunities in such a situation, and also what are the impediments that they encounter in such a economy.

Keywords: sharing economy; entrepreneurs; changes; benefits

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Session 2
Finance I.

Balázs Tóth, University of Szeged
Measuring fiscal distress at local municipalities

Due to the rise of the New Public Management (NPM) the accounting systems and the organizational best practices changed greatly in the public sector. The idea promotes to take over processes and methods from the private sector to the public sphere. This widespread paradigm has a tremendous effect on the importance of measurement of the efficiency, effectiveness and economical performance of the public sector.

The traditional profitability indicators provide misleading picture of the municipalities' efficiency. The performance of the local governments can be measured with the level of their fiscal distress. The goal of this research is to introduce models and theories which describe the importance the evaluation of the financial viability of the local governments.

Keywords: public sector; efficiency; fiscal distress; new public management; local government

Dániel Szládek, University of Szeged
The new form of pay-out policy: the emergence and theoretical background of share repurchases

The way companies return cash to their shareholders has changed considerably in recent decades. After changes in the legislation, share repurchases or buybacks have gained prominence, while dividends have somewhat lost their role as the main payout method. I intend to explore the reasons of this shift in payout policy.

In this paper, I focus on the theoretical background of share repurchases. Besides surveying the main theories related to share repurchases, I introduce the different ways companies can buy their shares back. Data indicating the emergence of share repurchases are also presented, while empirical studies testing the theories are discussed as well. The aim of this paper is to find out why share repurchases have become popular, and to reveal unanswered questions of the topic, which point to future research possibilities.

Keywords: corporate finance; payout policy; share repurchases



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Renáta Janka Kollár-Vizin, University of Szeged

The role of state institutions in the development of credit structure and lending conditions

Following the economic crisis that started in 2008, the issue of growth and catching-up in Hungary may have become more important than ever before. The strengthening of the banking system and the functioning of the companies operating in Hungary may be the way to get out of the crisis and to boost economic growth and, in the long run, to catch up. To this end, it is essential to provide banks and businesses with adequate capital and credit facilities.

In order to achieve the above goals, it is important to achieve the proper structure of the loan portfolio of enterprises, as regards the maturity structure of the loans as well as the sectoral structure of the companies, as well as the development of the credit costs of the companies. In my study, I would like to examine the role of the three institutions in achieving these goals. In June 2013, the National Bank of Hungary launched the Growth Loan Program to reverse the downward trend in corporate loan portfolio in previous years, and in January 2019, the Fixed Loan Program, called NHP Fix, to promote a more unified credit structure with its new credit products. Since 2014, the Hungarian Development Bank has been participating in the placement of EU-funded loans to the corporate sector with special intensity, helping companies to grow and innovate. Garantiqa Hitelgarancia Zrt. is currently the market leading guarantee organization in Hungary, with the help of risk sharing between the state, the guarantee institution and the banks. By guaranteeing the guarantor, bank's willingness to lend can be increased, thereby making a wider range of businesses more creditworthy.

In my study, I intend to analyze the impact of the three institutions' lending and guarantee activities on credit structure, interest conditions and lending conditions in recent years. In this context, I will draw conclusions on their role in promoting growth and technological development.

Keywords: corporate lending, special public institutions, growth, lending boost





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Session 3

Sectors and sectoral strategies I.

Balázs Ács, University of Szeged

New business models on the deregulated coach market in Central Europe

In many (but not all) Central European countries the passenger transport markets have gone through the liberalisation process to some extent. In the cut throat competition new business models and new brands have emerged, such as Flixbus, RegioJet, Leo Express, while others have disappeared, such as Polskibus, Berlin Linien Bus and Megabus. Their story and the lessons learnt are discussed. In a few years, Flixbus may achieve a quasi-monopolistic position and operate on the deregulated coach market just like competent authorities do on the regulated markets, however, without governmental control policy and use of public funds. Unless competition regulation is revised, the liberalized coach markets tend to return to oligopoly monopoly. What is liberalisation all about then?

Keywords: long distance coach market; Flixbus CEE; competition policy; deregulation

Zeeshan Mustafa – Waqar Ahmad – Abdul Jalil, University of Szeged

The known knowns, known unknowns, and unknown unknowns of re-industrial revolution for fertilizer sector and impact on sustainable agriculture development in Pakistan

Industrialization has brought enormous economies for the fertilizer sector in Pakistan. Annual net-profit for major players (Fauji Fertilizers Company Limited, Fatima Fertilizers Company Limited and Engro Fertilizers Limited) ranges between 63-118 million USD. Our study is mainly based on the Inputs Use Assessments made by The Food and Agriculture Organization of the United Nations (FAO-UN Pakistan 2015 and 2018) in consultation with farmers (> 6500; viz-à-viz: subsistence, medium and progressive) in eighteen crop production zones. Technological innovation, impartially improved farmers' technical efficiency and affected sustainable agriculture intensification. Less than <0.1% spending as social business ideology by the sector resulted in imbalance use of fertilizers, poor soil and crop health, post-harvest losses and less exports due to quality and packaging issues (cereals and horticultural crops). Implementation of 4.0 scenarios may further increase profitability, but subsistence level farmers will remain unbenefited until spending on establishing networks of farmers advisory centres is increased to at least 20%. Government authorities, FAO and private sector should share responsibilities through coercive policy initiatives.

Keywords: Industrial transition, sustainable agriculture intensification, corporate social responsibility

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Ola Al Jaafreh – Imre Nagy, Kaposvár University
Evaluation of sustainable agriculture by economic, environmental and social indicators in Hungary

Sustainable agriculture is the necessary means to achieve comprehensive development because it is an important source for improving agricultural production by quantity and quality during maintaining the natural resource base and developing the farmer's awareness in environmental and social issues to achieve the main goal of maximizing the contribution of the agricultural sector to the GDP. The efficiency, impact and real existence of sustainable agriculture are examined by measuring the impact of economic, environmental and social indicators on some components of these dimensions, in this paper an effort made to prove the strong relationship between the indicators of sustainable agriculture and the influences on income, productivity, and exports.

Keywords: sustainable agriculture, environment, economic, social, profit, indicator, data analysis

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Session 4

Marketing, behavioral economics, regulatory competition

Zsófia Gyulai, University of Szeged

The importance of customer journey mapping in B2B marketing

With the development of information technology, more and more complex touchpoints are emerging between customers and companies, making it more difficult for companies to control customer-brand interaction and increase user experience. Strong and positive user experiences can also enhance quality indicators such as conversion rates, but also affect hard-to-control touchpoints like public online expressions. In the long run, a loyal customer base can be created with the help of positive user experiences.

In my research, I examine the customer journey of a B2B software-as-a-service through a specific example. In the three periods of the customer journey (pre-service, service and post-service), with the help of mixed method, I will identify the potential touchpoints between the brand and the customer that may be relevant to the emotional quadrant of the customer journey. The main goal of the research is to identify the most important factors that influence the SaaS subscribers' decisions during their customer journey.

Keywords: customer experience, customer journey mapping, B2B marketing, software-as-a-service

Kristóf Gyódi, University of Warsaw

The professionalization of Airbnb across Europe

The aim of this study is to examine the differences between accommodation provided by professional and peer Airbnb hosts. While the empirical literature provides some evidence on higher prices in the case of listings managed by hosts with multiple offers (multi-listings), there is a significant research gap on the attributes of professional and non-professional offers. The basis of the study is a novel dataset containing Airbnb and hotel offers from Booking.com in 10 major touristic EU cities, prepared by web-scraping. The analysis focuses on accommodation type, price and spatial characteristics, comparing single-listings and multi-listings to hotel and hostel offers. The results show that multi-listings are closer substitutes to hotel offers than single-listings, with more similar spatial concentration and price distribution. Multi-listings are characterized by significantly higher prices than single-listings, and the price difference between hotels and multi-listings is also lower.

The analysis has major policy implications for the debate on regulating Airbnb and suggests that multi-listings are characterized by higher negative externalities than single-listings.

Keywords: Sharing Economy, Digitalization, Platforms

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Sevinj Omarli, Corvinus University of Budapest
Tactical marketing decisions of managers in times of crisis - Case study Qatar Airways Company

This research study is conducted with the primary aim of exploring tactical marketing decisions of managers in times of crisis; using Qatar Airways Company as a case study. The main purpose of the study is to determine which factors impact on tactical marketing decisions of managers and what marketing activities are applied in times of crisis. The interview with marketing information executives were analyzed using grounded theory methodology. Data analysis in the study followed Corbin and Strauss' (1990) coding processes. In two interviews 4500 coding materials are analyzed. Results indicate those four major components; marketing strategy of a company, marketing informational system (MIS), environmental factors, internal restrictions and limitations of the company play an important role in the decision-making process of managers in the crisis period. It is determined that if a company makes tactical promotional decisions such as proposing new campaigns, placing advertisements in local websites and tourism agencies, allocating budget for promoting the website as a sales channel, they will get positive outcomes during crisis periods.

Keywords: crisis, tactical decision, marketing activities, grounded theory

Ilkin Salmanli – Sevinj Omarli, Szent István University – Corvinus University of Budapest
The impact of country image, country-of-origin image and consumer ethnocentrism on purchase decisions (A study about Azerbaijani Food Company's entry into Hungarian Market)

The main aim of the study is to examine the impact of Azerbaijan's brand image as a country on purchase intentions of Hungarians towards Azerbaijani products. Azerbaijani products are not in the Hungarian market yet, and this research identifies whether it would be successful for Azerbaijani food companies to launch its operations in Hungary or not and what kind of prejudices and obstacles they need to cope with so as to be successful. Therefore, the impact of country image of Azerbaijan, the country of origin of Azerbaijani products and ethnocentrism of Hungarians on purchase intentions are analyzed to determine the objective of the research. It was identified that the country image of Azerbaijan in Hungary is neither highly negative nor highly positive because of the fact that Hungarians do not know much about Azerbaijan. However, values showed and proved that they are likely to have a positive attitude towards Azerbaijan as a country. As for COI, the similar statistics unearthed and it was noticed that Hungarians do not have any objection towards Azerbaijani products COI. These two variables also confirmed, with statistical analysis of dependent variable of purchase intentions, there is a relationship between positive relationship country image, COI and purchase intentions.

Keywords: Country image, Country-of-origin, Purchase intentions





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Session 5
Macroeconomics I.

Sisay Demissew Beyene – Balázs Kotosz, University of Szeged
Testing the Ricardian Equivalence Hypothesis in the Case of Ethiopia: ARDL Co-integration Approach

The Ricardian Equivalence Hypothesis (REH) suggests that when the government attempts to stimulate the economy by raising debt-financed government spending, consumption and demand does not increase, but remains the same. The objective of this paper is to test the existence of the REH in Ethiopia using annual data running from 1990-2011 by employing ARDL co-integration approach. The result shows only the budget deficit & government consumption expenditure fulfils the REH. However, government debt failed to fulfil it. This implies that the REH does not hold for Ethiopia.

Keywords: REH; ARDL; Ethiopia

Ilona Ida Balog, University of Szeged
Technological change in the System of National Accounts

The increasing role of technological advancement in economic performance is reflected also in the recent changes of the System of National Accounts. According to the 2008 modifications in this macroeconomic statistical accounting system the expenses of research and development are accounted as accumulation of capital and capitalized in the balance sheets. In the present research paper I would like to compare the strength of detectable relationships between the GDP and the stock or flow type measurements of research and development. This may highlight not only the importance of technology, but also reveals information on the nature of research and development expenses from an economic point of view.

Keywords: System of National Accounts; R&D Expenses; Capital accumulation

Timothy Yaw Acheampong, University of Szeged
The 4th Industrial Revolution, the Middle Income Trap Thesis and Technology Nexus

Innovation and technological progress have caused a disruption in world affairs in what has been described as the “4th Industrial Revolution”. In view of this disruption which is altering the world of work and how business is conducted globally, the ability of countries to adjust to these technological changes has been identified as a very critical issue that will determine their sustained growth and development. Even before the framers of the Sustainable Development Goals (SDGs) made calls for increased investments in innovation, research, and technological development as





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captured in SDG 9 and SDG 17, building on Solow's model of the 1950s, economic growth theorists had earlier predicted the positive effects of technology on the output of nations as per the following relationship $Y = \alpha + \beta_1(K) + \beta_2(L) + \beta_3(H) + \beta_4(N) + U$ where the output (Y) of a nation is a function of β (beta) is the rate of technological progress, K is the quantity of physical capital, L is the quantity of labour, H is the quantity of human capital, and N is the quantity of natural resources.

Although the relationship between technology and economic growth has been established, existing studies have not utilised the latest Global Innovation Index (GII) to explore this relation. In this regard, this study sought to answer the question whether there is a significant relationship between the income level and output of countries (as measured by GDP and GNI per capita) and their level of technological progress as measured by the latest GI. The study analysed data on 126 countries representing 90.8% of the world's population and 96.3% of global GDP. The study found a significant relationship between technological progress and output of countries. The GI scores positively correlated with both the GDP ($r=.347$) and GNI per capita ($r=.839$). Countries in the higher income groups also had higher GI scores and vice versa.

The findings of this study justify the global calls on policy makers for increased investments in research and innovation as well as health and education, which are the building blocks of human capital – the drivers of innovation – particularly for developing countries if they are to harness the benefits of technology and mitigate its adverse disruptions which are an inevitable by-product of the 4th Industrial Revolution. By so doing, developing countries could possibly avoid or break out of the so-called middle income trap (MIT) since countries that get stuck in the MIT are those that are lower down the technological ladder. However, more in depth analysis would need to be conducted on the mechanics of the role of innovation and technology in the MIT hypothesis.

Keywords: 4th Industrial Revolution; Innovation and Technology; Sustainable Development Goals (SDGs); Middle Income Trap (MIT); Human Capital

Isaac Kwesi Ampah, University of Szeged

Trade misinvoicing in Ghana and Hungary, the same or different? A comparative study of the primary and manufacturing sector

International trade is seen as a vital ingredient in the socio-economic development of any nation, especially in developing and emerging countries. Not only does it enhance their competitiveness by helping them reduce the cost of inputs and increase their value-added, but it also encourages innovation by facilitating the exchange of technology and technical know-how. Trade among countries also promotes export diversification by allowing countries involved to access new markets and new materials which otherwise were not available to them. However, for the benefit of





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trade to be sustainable and more inclusive, it is essential that the countries involved are able to amass their legitimate revenue and gains from it. Unfortunately, for many developing and emerging countries, the institutional framework coupled with imperfect monitoring and weak enforcement has created incentives for trade corruption by agents seeking to maximise their private profits and other gains.

Ideally, Ghana's total export to Hungary in a year should be equal to Hungary's total import from Ghana within the same year after adjustment is made for free on board (FOB) and cost-insurance-freight (CIF). However, in practice, one can expect differences to occur as a result of arithmetical or statistical errors. If these errors are genuine, one may expect it to be significantly small. Unfortunately, for many developing and emerging countries, the trade discrepancies are quite substantial, indicating the presence of unrecorded or deliberate falsification of trade transaction by at least one party to the transaction. This problem known as trade misinvoicing, though, not a new phenomenon has received substantial attention in academia and the policy circles recently due to its impacts on global trade and investment.

In this paper, we shall estimate and compare the trade misinvoicing for the primary sector in Ghana and that of the manufacturing industry in Hungary and evaluate its impact on total trade and general welfare.

Specifically, this paper hopes to

- Examine the commodities or product that are heavily involved in the trade misinvoicing practices in the study countries.
- Investigate and compare the trading partners for each of the study countries to see which countries are highly prone to misinvoicing.
- Estimate and compare the impact of the trade misinvoicing on total trade and general welfare for both Ghana and Hungary

Keywords: Ghana; Hungary; Trade misinvoicing; Welfare

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Session 6

Sectors and sectoral strategies II.

Ramharter Peter M. – Róbert Stefko – Eva Benkova – Martin Steiner, University of Presov in Presov

Small and Medium Sized Enterprises / Consulting Engineers Their actual importance to the economic, business models, restructuring, economic development and the impact of technology changes especially for engineering consultant entities

SME are the backbone of national economics in Europe. Nevertheless, due to their structure as very small companies (94% of all entities have less than 10 employees) no appropriate business models are available. For the special group of Consulting Engineers, the legal form of the entity, number of Employees, Innovation Management, the interface between Consulting Engineers and Suppliers and certain factors for quick development of new business fields, which may help to ensure the actual situation and enable stable growth. Risks and chances are described. The given data are supported by EU databases, data from chambers of commerce as well as ongoing development of an engineering consultant entity including specialized companies since 2002.

Keywords: SME, Consulting Engineers; business development; innovation management; risks and chances

Aiman S. Baloch, Warsaw School of Economics

Technology and tourism: Accessing the impact of technological change on economic development

Purpose- The research problems that the paper addresses were identified via the literature. There was no concrete research on how digitalization is impacting tourism operators across different countries; developed and developing. For the purpose of drawing immaculate comparisons samples from Pakistan (Developing) and United Kingdom (Developed) were selected. The purpose is primarily to investigate what the actual impact is and how is the economy combating that on the field. To move from the theoretical based knowledge to what the industry professionals have to say about the phenomenon called industry 4.0 on the economy and development of the tourism industry. Since the problem that has been addressed has not been defined clearly by literature the research is exploratory in nature where causal variables are identified and the effects and outcomes have been identified. 20 in-depth semi-structured interviews across Pakistan and the United Kingdom were conducted for the purpose of this research with no problems in approach or access.

Design/methodology/approach—Qualitative methods of data collection and analysis were used. The use of single method was based on the exploratory nature of the research which is



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based on a single theoretical framework and which explores one subject and moves to evaluate the implication of it using semi-structured interviews. For this purpose, a sample size of 20 was selected for 20 semi-structured interviews. The samples were selected due to the ease of access; best fit and representative of the population and personal contacts. The method used to analyse the data obtained from the semi-structured interviews has been adapted book called The Long Interview by Grant McCracken which is a systematic guide for interviewing as a method to obtain data from qualitative research. The research concludes on some key findings that are contrary to popular literature and are later used to draw conclusions and recommendations for this paper.

Practical Implications-Useful managerial guidance to develop effective combat strategies in the face of technological change. The cultural elements that will be highlighted in this research will be of significance to future researchers and managers to make crisper strategies.

Findings-Results indicate that there is a long way to go before the disruptions will topple the service driven tourism businesses. Digitalization has increased consumer awareness and more well informed and that has redefined the norms in industry 4.0.

Originality/value-This paper will provide future researchers in the field of technology and tourism the foundation that needs to get them started to study this unique relationship. Since there is not much literature present that sheds light on the matter of cultural disparity and how recently, rapid (and radical) technology development and digitalization impacts developing and developed economies respectively; this research will also pave the foundation for that.

Keywords- Digitalization, Tourism, Economy, Technological Change, Industry 4.0

Ibrahim Niftiyev, University of Szeged

De-Industrialization Patterns of Azerbaijan: Potential Outcomes of Dutch Disease Syndrome

This paper focuses on the particular channels of de-industrialization processes of Azerbaijan considering the Dutch disease syndrome as the theoretical framework. After the emergence of the Dutch disease hypotheses, many resource-rich countries have been the main research object of it. The consequences of the Dutch disease syndrome are chronic appreciated national currency, shrinking manufacturing sector compared to the booming sector and the services sector. In order to shed light on this aspect of the Azerbaijan economy, important literature examples were examined and mainly descriptive statistics applied to visualize the economy's most recent timeline from the de-industrialization point of view.

This research mainly brings back the actuality of the Dutch disease phenomena to Azerbaijan's economy, depicting and comparing policy responses of the national government during and after the crucial time periods like 2009 and 2014-2015.

Keywords: Dutch disease, de-industrialization, real effective exchange rate, real wages, sectoral output.

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Session 7
Innovation II.

Tõnis Tänav, School of Economics and Business Administration, University of Tartu, Estonia
Evaluating the policy mix to support innovativeness in firms: Evidence from Estonian firms

This paper aims to estimate the relationship between innovativeness and public-sector support for different innovation types at the firm level. Current research on the efficacy of direct public sector support lacks in detail, variation between supported activities is not recognized in quantitative studies. Data about innovativeness comes from Community Innovation Survey, covering 3204 Estonian firms from 2006 to 2012. Data about public support is added exogenously, covering all major Estonian paying agencies dealing with public support. Random effects model suggests that there is significant correlation between different types of subsidies firms receive and different innovation outputs. Models also suggest that some types of subsidies are not related to innovative firms, such as consulting and financial guarantees. Investment, marketing and innovation support is positively related with technologically innovative firms. Finally, results also suggest that firms participate in various instruments simultaneously, which can create interaction effects between policy instruments.

Keywords: innovation policy, policy mix, policy instruments, firm innovations, community innovation survey

Ainura Shakenova, Kaposvár University

How much potential is intellectual property in case of country with transition economics?

This presentation focuses on a number of components that determine the innovative performance of the countries with transition economics and their potentialities for economic growth. In the theoretical part I illustrate the most important strand of literature in this field, then I focus on the most important surveys in the field of patent. The empirical studies have attempted to reflect the qualitative and quantitative data on inventions in Kazakhstan and calculate the basic practical problems that inventors meet during patenting and commercialization. Moreover, survey shows the valuation of invention in Kazakhstan after patenting and perspective of transformation from invention to innovation. It includes key figures concerning the research inputs, and the innovative performance of Kazakhstan in perspective.

Keywords: Innovation, Intellectual Property, Patent, Survey





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Youjun Shin, School of Economics and Business Administration, University of Tartu, Estonia
Efficiency of public e-health services

Utilization of Information and Communications Technologies (ICT) is one of the criteria to determine the competitiveness of social activities. Since people expect that ICT on public service brings about a positive impact on society, the importance of e-government become greater. E-health is one of the e-government services and the interest in the service has been increasing as medical expenses have been increasing. Many researchers have studied an impact of e-health service through the various dimensions. Our approach to analyzing the usage of e-health service is to calculate the efficiency of e-health service in terms of intangible value such as time-saving. We present a theoretical model which estimates the impact of using e-health service for patient side and hospital side with Grossman health production function and predict an optimal amount of investment for the outcome of public healthcare.

Keywords: public health; eHealth; grossman model; medical care



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Session 8
Finance II.

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Inflation Forecasting in Developing Economies Using SARMA Models – The Case of Ghana

Due in part to a weakening link between money aggregates and the inflation variable, monetary policy authorities are targeting the price level directly. This has made it more necessary for inflation forecasting to be considered in the conduct of monetary policy. Developing economies such as Ghana have two main components of inflation – food inflation and non-food inflation. Due to the reliance of agricultural on rainfall patterns, food inflation is expected to exhibit some seasonalities mimicking rainfall patterns. The non-food component of inflation mainly constitutes imported finished products which is expected to mimic exchange rate patterns. These characteristics makes it important to consider forecasting models similar to the model used by Moser, Rumler and Scharler (2007) that capture the unique characteristics of the various components of inflation.

This paper will present different approaches to forecasting inflation in developing economies using Seasonal Autoregressive Moving Average (SARMA) models that capture seasonal components of the inflation variable which other univariate models cannot capture effectively. The aim will be to show that inflation forecasting models that capture unique characteristics of the inflation variable will be good at forecasting inflation in both the short-term (1 year) and the very short-term (2 months). The results will also explore how effective these models will be in capturing policy changes if they occur in the in-sample period. This feature will make it somewhat suitable for policy authorities who will want to know the direction of the inflation variable after policy decisions have been made and can help them make future policy decisions.

Keywords: Inflation; Seasonal Autoregressive Moving Average; Forecasting



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The relative importance of monetary policy instruments in Latin America

Although monetary policy is widely used by central banks to fine-tune the economy, there is contentious debate about its instrumentation. Since the recent global financial crisis, monetary authorities in emerging economies have experienced substantial changes in the choice of monetary policy instruments. However, there is a paucity of studies investigating the instrumental problem in emerging economies. This paper sheds light on the relative performance of instruments in Latin America, which has crucial implications for the design and implementation of monetary policy in the region.

Keywords: monetary policy, instrument, Latin America

Ábel Czékus, University of Szeged
Post-crisis trends in taxation – twilight or survival of the models?

Due to the recession of the 2008 crisis European Union Member States faced significant challenges in regulatory policies. Apart from the loosening of the common competition policy several novelties evolved in the field of corporate taxation as well. We see a dual approach in this: Member States struggle screening their sovereign rights, on one hand, and, on the other hand, more emphasis is put on the European Union level initiatives enshrining the integrity of the internal market.

In our paper we examine corporate income tax regulation of several Member States of the European Economic Area. The goal is to describe those practices that considerably deviate from the mainstream in this regulatory field and potentially endanger the proper functioning of the internal market. In particular we focus on the conformity of the national legislation with the common competition policy providing a level playing field for doing business. Secondly, we desire to identify those regulatory outputs that impede a deeper cooperation between the Member States.

In the research we lean on the comparison of national particularities; we identify practices that make jurisdictions attractive for taxation purposes. However, we admit the considerable approximation of national legislations took place in recent years and highlight the role of the European Commission in this process.

Keywords: corporate income tax, harmful practices, internal market



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Session 9
Macroeconomics II.

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Spatial interactions of regional labour markets in Europe

The study investigates spatial dependence of unemployment and employment rates in Europe relying on the Eurostat NUTS2 level data of 306 European regions. Spatial dependence is explored by using spatial error, spatial lag and spatial autoregressive model with spatial autoregressive disturbances. The findings show that regional labour markets in Europe cluster in space, i.e. regions with high (low) (un)employment rate are surrounded by regions with high (low) (un)employment rate. The study provides evidence that significant spillovers across the regional labour markets exist. (Un)employment rate in one region is directly affected by (un)employment rate changes in other regions, but also by unobserved shocks in other regions. It was found that the spatial effects are not determined by differences in the share of population of youth, differences in industrial structure or difference in human capital. The results of the study confirm the importance of close coordination between regions while developing labour market and regional policy measures. Keywords: regional labour markets; spatial econometrics; spatial dependence; clustering; Europe

John Kibara Manyeki – Balázs Kotosz, University of Szeged
Income Inequality and Economic Growth: An Empirical Analysis of Kenya

In this paper, the overall goal is an empirical investigation on the relationship between income inequality and economic growth for Kenyan economy. The hypothesis addressed was: inequality is harmful for growth. An autoregressive distributed lag model was adopted using a time series data spanning from 1990-2015. The study found a significant positive but weak long run relationship between income inequality and growth. The short run was a strong positive relationship which was significant at 1% level. This income inequality favors the rich and therefore to ensure fair distribution of wealth and a balanced growth, a policy goal should be equity in income distribution to reduce excessive income disparities. More research should be carried out on all other measure of inequalities, to bring it into light which among them is more influential to GDP growth.

Keywords: GINI coefficient, GDP growth, Kenya





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Marcell Zoltán Végh, University of Szeged
Has Macroeconomic Imbalance Procedure managed to reduce imbalances and improve economic recovery in EU countries?

The European Union suffered a prolonged crisis episode due to the global financial crisis of 2008-2009, followed by an economic crisis and a sovereign debt crisis in various member states. Robust, pre-crisis economic growth is failing to recover ever since as levels of unemployment remained high, thus economic performance is struggling to reach pre-crisis levels in the so-called periphery countries. Common institutions have been improved by several important changes in terms of fiscal and monetary policies as well, resulting in a preferably more stable economic structure. To ensure balanced economic growth, European Commission have launched a monitoring system containing of 14 indicators and a corrective operation (Macroeconomic Imbalance Procedure) which aims to reduce economic imbalances of member states. This tool, complementing the regulations of Stability and Growth Pact, may help to reduce the evolution of further crises and to establish more sustainable economic growth. However, member states don't react the same way.

In this study, we examine member states' performance during the years of crisis, creating hierarchic clusters based on macroeconomic data, and examining the volume of imbalances within those clusters. We explore trends of economic imbalances as we aim to establish a connection between decrementing economic imbalances and regaining economic growth. We also suspect that there are continuously well-performing and badly-performing countries in the terms of macroeconomic imbalances, thus regulation is unable to improve member states' non-rule-abiding behaviour.

Keywords: economic crisis; eurozone; economic imbalance; recovery

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