

Causes and Challenges of the Danube Region Countries in Attracting and Retaining Talents as One of the Key Competitive Advantages of the Future

JANEZ KOLAR ¹

Abstract Today's world resonates with increasing oscillation patterns, which are detectable in different timeframes and phase shifts. These oscillations can be detected in shorter or longer periods. Despite fears that computers would replace humans, there is a growing shortage of competent ICT experts. As technologies like High-Performance Computing (HPC), Artificial Intelligence (AI), and Quantum Technologies (QT) advance rapidly, this shortage worsens, raising entry barriers. This chapter examines the colourful Danube region countries' challenges in attracting and retaining ICT talent. It compares countries' understanding of creativity, entrepreneurship, new emerging technologies, and competitiveness alongside their capacities to attract and retain skilled ICT professionals.

Keywords: • tourism • real estate • tourism development • tourist destination • sustainable development goals

CORRESPONDENCE ADDRESS: Janez Kolar, Ph.D., Scientific Associate, Rudolfovo - Science and Technology Centre Novo mesto, Podbreznik 15, 8000 Novo mesto; Assistant Professor, Faculty of Information Studies, Ljubljanska cesta 31a, 8000 Novo mesto; School of Advanced Social Studies Slovenia, Gregorčičeva 19, 5000 Nova Gorica, Slovenia, e-mail: janez.kolar@fuds.si; janez.kolar@rudolfovo.eu.

<https://doi.org/10.4335/2024.3.4> ISBN 978-961-7124-26-2 (PDF)
Available online at <http://www.lex-localis.press>.



© The Author(s). Licensee Institute for Local Self-Government Maribor. Distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 license (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits use, distribution and reproduction for non-commercial purposes, provided the original is properly cited.

1 Introduction

The world is getting more interconnected and deeply globalized and thus increasingly multidimensionally interdependent (Kolar et al., 2020). Part of the interdependence is driven also by global trends (Rončević & Modic, 2011; Makarović et al., 2014) that act as steering forces for local actors to orient themselves. Thus, the world resonates in several different oscillation patterns with their phase shifts. These oscillations can be detected in shorter periods, observed in longer periods ('Citation - The Limits to Growth; a Report for the Club of Rome's Project on the Predicament of Mankind - UW-Madison Libraries', n.d.) and even noted as very long waves (Kondratieff & Snyder, 1984), which are sometimes not very difficult to overlook (Tyulin et al., 2023) because one must search longer and deeper. And for that, we need time, energy and, of course, talented, skilled and motivated people (Golob & Makarović, 2019; Fric et al., 2020).

Even though it is slightly contradictory, as humans expressed fear that computers would replace them, we face a scarcity of competent ICT experts and talents in general. With rapidly developing technologies, while also introducing new technologies (i.e., High-performance computers - HPC, Artificial Intelligence - AI, Quantum Technologies – QT, with probably most present Quantum Computers – QC, etc., this lack of competent professionals gets presented even more acute and entry barriers ('The Competitive Advantage: Creating and Sustaining Superior Performance - Book - Faculty & Research - Harvard Business School', n.d.), especially for less developed regions are rising again, leading towards additional asymmetry in regional development (Golob & Makarović, 2021; Džajić Uršič & Jelen, 2022; Pandiloska Jurak, 2024). Some principles of societal steering seem in place for implementation (Rončević & Besednjak Valič, 2022; Golob & Makarović, 2022). Amidst these challenges, the concept of human dignity (Kleindienst, 2017; 2019; Kleindienst & Tomšič, 2018; 2022) is crucial, ensuring that the integration of advanced technologies respects and upholds the inherent worth of all individuals.

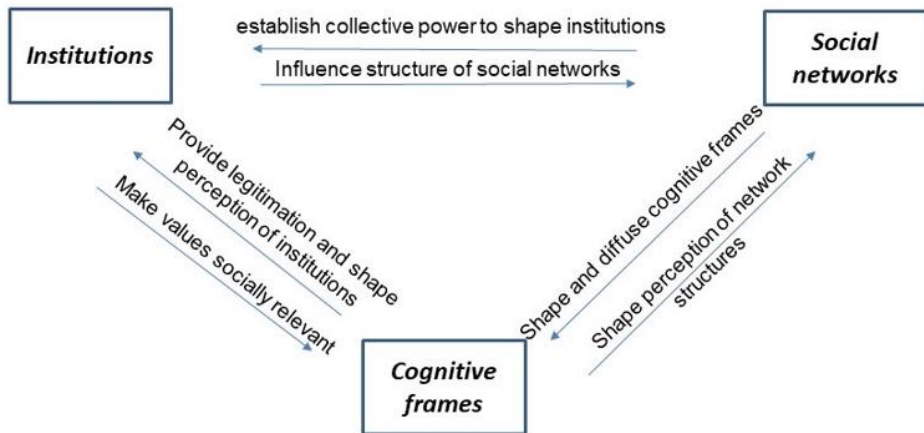
This chapter aims to highlight some causes and challenges that Danube region countries face in efforts to attract and retain talent, researched in the field of HPC experts (see also Besednjak Valič et al, 2022a; Besednjak Valič et al., 2023). This will be elaborated through a comparison of the situation in the Danube region countries in the fields of, first, understanding creativity (Besednjak Valič et al., 2022a), entrepreneurship (Modic et al., 2022), and new technologies, and secondly Perception of competition/competitiveness in the country. Further, we will compare the Capacities of the countries to attract talented people and at last, also the capacity of the countries to retain competent ICT experts.

Shortage of resources is a fact of today's Business environment (Autor, et al, 2003) and even though one might expect that technology, including robots, would start to replace human work at some point, there are shortages of many millions of skilled professionals expected by 2030 ('The \$8.5 Trillion Talent Shortage', n.d.). This situation impacts also interorganisational stability (Besednjak Valič, et al., 2022).

While there are several skills predicted to be of importance, ICT-related skills seem to be the most valuable (van Laar, Deursen et al., 2020).

This increasing speed of constant change, combined with technological advancement will lead to the increased demand for stronger cooperation between different actors (Besednjak Valič, et al., 2022) inside social fields, as regarded in the Social fields theory (Beckert, 2010b). Considerations in policy implementation are also in place (Makarovič et al., 2014; Makarovič et al., 2014; Fric et al., 2023).

Figure 1: The reciprocal influence of the three social forces in market fields



Source: (Beckert, 2010b, 612).

In the following chapters, we will present the results of the research and analysis of data, gathered through EU Interreg Project InnoHPC (*InnoHPC Project High-Performance Computing for Effective Innovation in the Danube Region Output 3.1. Digital Transformation of Industry Guidelines with High-Performance Computing, n.d.*), where data were gathered in fourteen countries, inside automotive and electrical industries representatives (Kolar, 2020).

There will be different perspectives on addressing the lack of competent personnel presented, collected around three elements of social fields: institutions, networks, and cognitive frames. Additionally, we will discuss various circumstances and challenges, as well as possible ways to improve the situation, especially with a view to the long-term sustainable provision of qualified professionals.

2 3 x 3 possible points of view on talent consideration in the Danube region

The Danube region consists of fourteen countries with very different characteristics, naturally also in economic development (Kolar & Besednjak Valič, 2020). Here we are adopting the approach of dividing Danube region countries into three groups (as in Table 1) regarding the Global Competitiveness Index:

Table 1: Distribution of Danube Region countries regarding GCI¹ ranking

GROUP - A	GCI	GROUP - B	GCI	GROUP - C	GCI
Germany	3	Slovakia	41	Serbia	65
Austria	22	Hungary	48	Croatia	68
Czech Republic	29	Bulgaria	51	Montenegro	71
Slovenia	35	Romania	52	Ukraine	83
				Moldova	88
				Bosnia and Herzegovina	91

Source: (Kolar, 2020).

3 Social forces of Institutions

3.1 National Innovation Policy

Table 2: Assessment of a National Innovation Policy

INSTITUTIONS – Table 1		
ASSESSMENT OF NATIONAL INNOVATION POLICY		
STRENGTHS		
Advanced countries	Intermediate countries	Countries lagging behind
- Suitable vision of innovation - The fundamental requirement is cooperation - Financial resources	- Existence of national strategies - Strategy Paper on R&D and Innovation	- Improvement options - Recruitment of experts - HR training - Implementation of HPC at all levels of study
- Access to funding opportunities for SMEs - Clusters	- Compliance with H20202 - Clarity of strategy objectives	- Important EU partnership for HPC

- Special training - Networking events - Information events - High-quality HR - The projects support R&D - HPC IS A long-term investment - Supportive environment	- Support national policies for innovation - The vision for innovation is clearly defined - Implementing the 2014/20 Smart Specialization Innovation Strategy - IND R&D is perceived as a long-term goal - Access to EU funds - EU operational program - TTO (support environment) - Calls for innovation-oriented cooperation HEI/IND - Active networking of relevant stakeholders - Researchers employed by SMEs - Some innovative SMEs - High quality of certain institutions	- The EU network enables the use of HPC infrastructure for R&D - Development of agriculture
- WEAKNESSES		
- Advanced countries	- Intermediate countries	- Countries lagging behind
- Deficient national strategy - Lack of vision on innovation at the national level - There is no long-term/clear vision - Poorly defined innovation policy - SMEs do not know the usefulness of HPC results - Funding problems - High patent application costs.	- Modification of NAC targets for R&D&I - Strategy R&D&I has no short-term/long-term goals - No concrete vision for innovation - No long-term goals - There is no innovation policy - Innovation strategies illustrate the good practices of foreign countries	- Slow establishment of the R&D financing process - Underfunding I - No strategy papers - The business environment is not interested in HPC - Public Administration is not interested in HPC - Economic situation - Networking is in the domain of individuals
- Lack of support from a governmental institution (supportive environment) - Weak IND/ Public Administration cooperation - Companies themselves promote innovation - Lack of skilled engineers	- Bureaucratic and slow policy implementation - NAC policy focused on unemployment - Limited cooperation with HEI - Limited access to knowledge by IND - Lack of promoting I in HEI - Instability of financing - Unstable EU and NAC funding - Lack of funding - Low NAC investments in science	- Designing own UNI network to use HPC

	- Lack of resources/resources for software support - Low start-up capital for start-ups and spin-offs - Not recognizing the effectiveness of HPC - Slow awareness of decision-makers about R&D returns - HPC is not recognized as a key IND R&D tool - HPC is not recognized as the most important/effective IND R&D tool	
--	--	--

Sources: Data ('InnoHPC - Interreg Danube', n.d.); Analysis (Kolar, 2020).

Perception of National Innovation Policy elaboration and effectiveness as one of the necessary conditions, in order to assure the long-term availability of competent (ICT) professionals, varies from one group of Danube region countries to another. While financing is, as one could expect, mentioned in all three groups, in advanced countries they are happy with financing in general, but mention problems with financing patents, while in lagging countries, in the beginning, economic situation and lack of financial resources is mentioned, together with disinterest in new technology (in that case - HPC). In intermediate countries, financing is mentioned as well. On one side, access to EU funds is considered a strength, but on the other side, unstable EU and national funding, low national funding in science and R&D, and, similar to lagging countries, effectiveness (that implies the reason for use & investment) of HPC is not really recognized. In advanced countries, on the other side, a similar problem arises more in the SME segment of the Economy.

Also with the national policy itself, there seems to be room for improvement along all of the Danube regions, but on different levels. While in lagging countries strategic papers are missing, in intermediate countries, modification of the national strategy, together with changing of national targets for R&D and Innovation is being missed. Additionally, in intermediate countries would like to see more defined short-term and long-term goals regarding R&D and Innovations.

Training is, quite surprisingly, mentioned only once, as a strength in advanced countries, while in intermediate countries they see weak cooperation among industry and Public Authorities. In intermediate countries, they also found tendencies of new technology (HPC) implementation in universities.

Therefore, in advanced countries cooperation between Industry, Higher Educational Institutions and Public Authorities exists. In lagging countries all hopes are put into EU

Partnerships for New technologies (HPC) and in intermediate countries they experience a little bit of *both worlds*.

3.2 Attracting talented people

Table 3: Capacity of the country to attract talented people

INSTITUTIONS – Table 2		
CAPACITY OF THE COUNTRY TO ATTRACT TALENTED PEOPLE (TP)		
STRENGTHS		
Advanced countries	Intermediate countries	Countries lagging
- Research groups - Excellent professors - Professors use HPC - Development of new study programmes - Existence of capabilities – HR from the whole EU - Maintaining high quality of living	- Good quality of life at a low cost - Low cost of living - Lower cost of living - Quality of living - Tax relief - Following H2020 directives - EU migration policy - National projects for recruiting and supporting TP - Scholarships - Existence of infrastructure and working conditions - Enthusiasm for HEI - Quality UNI	- Untapped potentials - The gradual opening to the EU - Geographic location - Expertise in low wages - HPC structure - National TP promotion
	- UNI built-in HPC - Recruitment of TP with HPC Competencies - International companies - professional advancement - TP from less developed countries - No need for recruitment - Self-sufficient HR capacity	
WEAKNESSES		
Advanced countries	Intermediate countries	Countries lagging behind
- State unattractiveness for TP with HPC competencies - Low budget HPC / scholarships - Low enrolment in studies - Rare links with IND - Few interesting projects - Too narrowly specialized HPC experts for SMEs	- Weak NAC policy/program to attract - Lack of NAC strategies for IND R&D - Passivity of NAC policy - Inadequate EU policies (promotion of brain drain) - Lack of own researchers - Own brain drains	- Inadequate political system - Lack of strategic direction - Undeveloped IND - Lack of jobs - IND does not invest in R&D - Disinterest IND for HPC - Own brain drains - Bad HEI system

- Few prospective companies - Lack of NAC policies to attract TP - The passivity of NAC policy - Incompetent NAC policy for TP - Low pay due to taxation	- Poorly developed migration policy - Inconsistency of pay and job requirements - Low wages for young people - Employment problems - Poor working / financial conditions - Lack of jobs for high K people - UNI recruits TP - UNI/companies attract TP on their own initiative - The weak international reputation of knowledge centres - HPC is not included in HEI programs - Small number of knowledge centres	- Lack of financial support to HEI - Lack of finances for professionals - Inadequate salaries - Post-war consequences - Transition country
	- Obsolescence of technologies - Unstable R&D funding - The unsustainability of NAC HPC funding (project financing) - Low quality of life - Lack of housing - Improper use of technological resources	

Sources: Data ('InnoHPC - Interreg Danube', n.d.); Analysis (Kolar, 2020).

It is quite interesting that quality of life is found, among intermediate countries, both as a strength (low cost), as well as a weakness (low quality of life). Further, on the strength side, in advanced countries, there are noted High-quality universities, the use of HPC9s in Higher Educational Institutions, high quality of living, and new study programs. The quality of universities is mentioned also in intermediate countries, besides the active national policy for attracting TP from less developed countries. Presence of International companies are also expressed as a strength in intermediate countries. In countries lagging behind the gradual opening to the EU, as well as disproportions between skills and wages and also encouraging national policies for talented people are being recognized as strengths.

In the weaknesses section, own brain drain is recognized both, in intermediate and lagging countries, while in advanced countries they observed state unattractiveness to talented people was mentioned, as well as rare (interesting) links to industry. Weak national

policies regarding talent were observed both in advanced countries and also in intermediate countries. Unstable funding in intermediate countries and Undeveloped industries and a lack of investment in R&D in lagging countries were also observed. The latter also pointed out the inadequateness of the political system.

3.3 Retaining talented people

Table 4: Capacity of the country to retain talented people.

INSTITUTIONS – Table 3		
CAPACITY OF THE COUNTRY TO RETAIN TALENTED PEOPLE (TP)		
STRENGTHS		
Advanced countries	Intermediate countries	Countries lagging behind
- Intercultural environment - Technology parks	- Quality of life - Housing policy regulated	- Stable exchange rate - GEO position - Regulated labour legislation
- Improving scholarship - Direct transition to IND - Interesting R&D (EU) projects - High quality of life	- Lower cost of living - Well organized NAC programs for retaining TP - NAC plans for retainment of TP - NAC policy supports the improvement of HPC services in HEI / IND - Foreign languages - Advanced equipment - Connection of domestic experts with foreign countries - Constant channelling of own TP to UNI - Consistency of IND needs with HEI programs - The HPC community maintains the TP - GITDA/NIIDP experts in HPC - Private R&D providers - Possibility for professional advancement - Companies retain TP - ICT hub - Successful operation of the ICT sector	- Willingness to investment - The expertise at low cost - Utility of HPC in HEI - The focus of NAC policy is on the return of professionals to the homeland - Companies retain their own staff
WEAKNESSES		
Advanced countries	Intermediate countries	Countries lagging behind

- HPC brain drain - Closure/disinterestedness of the state - Low income/higher wages abroad - Language barriers outside the work environment - Passivity of UNI and NAC policy - Lack of people with technical knowledge - Artificially restraint of individual development - Lack of interesting projects	- Lack of R and I infrastructure - Low level of R&D infrastructure - Lack of successful R programs - Lack of R - Big differences in personal income - Low wages - The state is incapable of retaining TP - NAC's inability retention TP - Inconsistent NAC support for TP retention - Lack of TP with ICT / HPC skills - HPC is not included in the UNI training program - Exceptions UNI with HPC - Rare chance of retaining talent HPC - HR retention problems - Migration of HPC experts - The high level of brain drains - Low support to entrepreneurship - The ICT sector works for foreign companies	- The political system - Lack of attraction program - Rigidity of institutions - Lack of conservation programs - Unpromising - Unpromising for MR - Low wages - Passivity of IND - A brain drains
---	--	---

Sources: Data ('InnoHPC - Interreg Danube', n.d.); Analysis (Kolar, 2020).

In efforts to retain talented people, all three different groups of countries face brain drain and also foreign language barriers. While in advanced countries they worry about retention capacity, in intermediate countries observe orientation to talent retention, while in lagging countries they praise orientation of national policies toward returning talents into the homeland. National policies have, according to the research, quite a lot of space for improvement in all three groups also, while intermediate countries are criticizing unregulated labour relations and legislation. In lagging countries, they point to weaknesses also rigidity of institutions, low wages and unpromising conditions for young researchers, while lagging countries consider labour-related legislation as a strength.

In advanced countries, as a strength, they would also mention Intercultural work environments, Technology parks, Direct transitions from Higher Educational Institutions to industry and interesting research projects also.

4 Social forces of networks

4.1 Networks organization

Table 5: Networks organisation & their influence on the use of HPC in Industrial R&D

NETWORKS – Table 1		
NETWORKS ORGANISATION & THEIR INFLUENCE ON THE USE OF HPC IN IND R&D		
STRENGTHS		
Advanced countries	Intermediate countries	Countries lagging behind
- Cross-sectoral IND networks - Cross-sector Business Community IND / HEI - Sectoral IND clusters - Local Business Community Networks - HEI Networks - Open HEI network - HEI International Network - A strong tradition of associations/clusters - HPC networks were created through EU projects	- National networks/Association of clusters /HEI network - Cross-sectoral networks in IND - Good acceptance of HPC applications in IND - The necessity of proving HPC IND (effectiveness) - Possibility of renting HPC in IND - Project cooperation HEI / IND - Contributing to the spread of HPC - Exchange of experience - Regional clusters/networks - Regional T&IZ networks with Chambers of commerce and trade - Regional HPC Network	- ICT networks - HEI networks -(Sectoral networks) -Cross-sectoral networks -International networks -(East EU networks) -RENAM network -Stronger international networks in IND -CERN -Growth of IND Capability/Productivity
WEAKNESSES		
Advanced countries	Intermediate countries	Countries lagging behind
- Weak cross-border networks - Termination of PRACE membership	-HPC in IND R&D is not a priority for NAC networks	-Lack of operational networks -Non-affiliation of specialists

- Virtual networks because of EU projects - Lack of knowledge about HPCs by associations and networks - Conservativeness of IND - Distrust of novelties - Lack of experience in networking - Dysfunctional networks - Competition in networks	- Disinterest of IND for HEI R and applicability of results - IND does not recognize interesting technologies - Inefficient use of new ICT services by SMEs - IND clusters do not know the usefulness of HPC services in IND R&D - Lack of cross-sector cooperation in A IND - Straw network (obtaining EU funds) - Inactive networks after completed projects - Weak links to EU networks - Competition vs participation in IND clusters - Vague legal network options - Closure of sectoral networks - Weak sectoral networks - Problems of (descriptive) evaluation of network Performance - Cross-sectoral networks operate at information levels - Failure to achieve the potential of innovation networks	- No existence of active networks - Lack of IND networks - The prevailing informal network of IND - Competition in the IND and NAC networks - The closeness of NAC networks - Weaker NAC IND networks
---	---	--

Sources: Data ('InnoHPC - Interreg Danube', n.d.); Analysis (Kolar, 2020).

Networking demand resources, mostly time (human resources with the right attitude and skills, and finances – funds, but first of all, clear understanding of the importance of the quality and functional networks.

Networks are available all around the Danube region, but if in lagging part, they report lack of operational networks, in intermediate countries there are sectoral networks available, usually with strong borders, and, in the advanced countries, there is a presence of larger number of different cross-sectional networks (Uršič and Jelen 2022).

If in lagging countries competition among networks is detected, in advanced countries a tradition of networking is an important part of establishment (Mileva-Boshkoska et al., 2018; Modic & Rončević, 2018; Fric et al., 2023; Golob et al., 2023). As for EU members openness for co-operation in different initiatives, intermediate countries express stronger connection to EU, and also cross-border networks as important initiative for development.

To obtain EU funds, sometimes straw networks are reported, which are usually inactive after project closing and possible initiatives to continue work and further development are missing.

4.2 Cooperation

Table 6: Cooperation between stakeholders active in innovation and technological policy

NETWORKS – Table 2		
COOPERATION BETWEEN STAKEHOLDERS ACTIVE IN INNOVATION AND TECHNOLOGICAL POLICY		
STRENGTHS		
Advanced countries	Intermediate countries	Countries lagging behind
- Good cooperation - Existence of cooperation - Close relationships - Good RC / IND collaboration - HEI actors influence NAC policy - Grant scheme for funding R&D - Access to knowledge - Synergistic competences - Established HPC recognition	- Good practices of cooperation - Good sectoral cooperation - Cooperation of private companies - Good cooperation - Active cooperation GOV/IND - Regular discussions - Strong clusters - Clusters are involved in negotiations with the GOV - IND networks call for a change in policy for REG development and R&D - Actors A and metal clusters deciding on cooperation in the	- Good relations - Good cooperation - Participation of leading players - Legal framework - Good cooperation in HEI - The agreement public-private partnership for the development of HPC IND - Conferences
WEAKNESSES		
Advanced countries	Intermediate countries	Countries lagging behind
- Weak S between companies (closeness) - Elemental National Policy - Lack of communication policy / HEI - Technology transfer from universities to companies - Knowledge and skills of individuals - The low level of confidence - Regulations (IPR, disclosure) - The complexity of cooperation	- Top-down politics - Lack of NAC innovation support environment - Careless adopting strategies - Adopt strategies without the consent of HEI experts - GOV lack of understanding of the needs of the IND / HEI - Inadequate R&I strategy (law) - Lack of Public-Private-Partnership and readiness for aPublic-Private-Partnership - Public-Private-Partnership is considered a scam	- The critical mass of I actors - Inappropriate application of Public-Private-Partnership law infrastructure - Non-cooperation of public institutions and private companies - A small local market - Weak cooperation among HEI and Industry - There is no transfer of knowledge - Lack of communication

	- Weak involvement of SMEs in I&T policy - Weak S for value added. - Non-recognition of validity to individuals - Weak cross-sectoral ties among HEI and IND - Lack of training for the market needs (jobs) - Weak cross-sectoral connections	
--	--	--

Sources: Data ('InnoHPC - Interreg Danube', n.d.); Analysis (Kolar, 2020).

There is no social and business life without cooperation. Also here, there are large differences noticeable among countries of the Danube region. In the northwest, advanced part, the existence of cooperation and close relationships between different sectors and groups are reported. Therefore, Higher Educational Institutions influence national policy, which also promotes, and enables above mentioned close cooperation. In intermediate countries, good practices of cooperation are found also. Especially sectoral cooperation, cooperation of private companies and cooperation between government and industry. Even though the national policy promotes cooperation between Higher Educational Institutions and Industry, there is the perception of opportunistic participation of SMEs.

Also, in lagging countries, there is a perception of good relations and cooperation, especially among Higher Educational Institutions and also some Public Private Partnerships available, but as an obstacle, there are noted: a low critical mass of innovative players, the small size of markets and poor cooperation between Universities and Industry.

4.3 Trust

Table 7: Level of trust among actors, active in Innovation & Technological policy

NETWORKS – Table 3		
LEVEL OF TRUST AMONG ACTORS, ACTIVE IN I&T POLICY		
STRENGTHS		
Advanced countries	Intermediate countries	Countries lagging behind
- Excellent confidence in HEI - A lot of Trust - Developed networking. - The openness of strangers - Good experience	- An established supportive environment builds confidence - SME clusters - Cooperation in EU projects - Promoting cross-sectoral Cooperation	- Growth of trust between institutions - Frequent consultation of R&D stakeholders - Readiness for joint R & D projects - Cooperation is based on trust

	-Building confidence by increasing companies with capital -motivation of students -Large associations-built networks and fostered trust -Agreements on trust -Legislation -S of non-competitive players	- Raising awareness of the rights and protection of intellectual property
WEAKNESSES		
Advanced countries	Intermediate countries	Countries lagging behind
- Competition to obtain NAC funds - Lack of S approaches - Restriction of trust - Building Trust takes time - - Slow build trust	-Passivity of local actors -Inadequate level of S with EU actors -Lack of trust -The importance of trust is not perceived. -Trust is not based on HPC solutions -Lack of INFO on HPC options -Distrust in PPP	- Limited trust (interest) - The slowness of development weakens trust. - Weak relations in the cross-sectoral S - poor execution - Unpromising
	-The dominance of competitiveness in the sector -Competitiveness -Low trust between HEI/IND -Companies do not trust HEI -HEI does not allow access to infrastructure to private companies -Weak exchange of INFO/knowledge -Inadequate legislation (IPR) -Lack of communication	

Sources: Data ('InnoHPC - Interreg Danube', n.d.); Analysis (Kolar, 2020).

Building trust as one of the most important building blocks for cooperation (Fric et al., 2023) takes time, effort, and, first of all, the right amount of capable and reliable persons with the right attitude.

Building weak ties and later strong ties (Granovetter, 1992) is a long-term project and does not happen instantly, overnight.

As in lagging countries, there is a perception of limited trust, which is additionally powered by the slowness of the process of trust development, in intermediate countries they observe the passivity of local actors, even though the basic supportive environment, which builds confidence is established. In advanced countries, as we might expect, they

report on excellent confidence in Higher Educational Institutions, Openness for strangers, developed networks and good experience with the topic of trust. This can be overdeveloped into competitiveness to obtain EU funds and also to lack of collaborative approaches, as observed in advanced countries group.

In intermediate countries, they report on good cooperation and trust-building among non-competitive players and also promote cross-sectoral cooperation.

Also in the lagging countries group, there is the perception of growing trust between institutions, as cooperation relies on trust. The level of IPR awareness is also raising in lagging countries, as well as readiness to join R&D projects.

Among weaknesses in trust in intermediate countries, there is competitiveness among actors found and Higher Educational Institutions do not allow access to new technologies infrastructure to industrial actors. Other possibilities for improvement in lagging countries are trust, which can be limited to personal interests only, the unpromising general situation in the country (slow development) and weak cross-sectoral cooperation.

5 Social forces of cognitive frames

5.1 Attitude regarding creativity, entrepreneurship, and new technologies

Table 8: Culture and attitude of the population concerning creativity (U), entrepreneurship (ENT) and new technologies (NT)

COGNITIVE FRAMES – Table 1		
CULTURE AND ATTITUDE OF THE POPULATION CONCERNING CREATIVITY (U), ENTREPRENEURSHIP (ENT) AND NEW TECHNOLOGIES (NT)		
STRENGTHS		
Advanced countries	Intermediate countries	Countries lagging behind
- High level of entrepreneurship (ENT) - Business orientation - Business orientation - Lots of ideas - successful companies - The key advantage of the country is U/ENT/NT - R&D is the topic of news - Solving problems at low-exploitation of resources - The open mindset in IND - The culture/ attitude of the population is not important - Creativity	- Youth Aspiration for U/ENT/NT - Young people's openness to new ideas and trendsetters - Young people focused on entrepreneurship - The lower propensity for risk - Young people accept NT - The conservativeness of older generations - Improving start-up culture - Improving the support environment for start-ups - Openness to NT - Existence of I centres	- Trends followers - NT's popularity in job creation - Good corporate culture in "soft" companies - The desire of young people to succeed in IT - High HR potential - Talented young people - Creative/talented individuals in ICT - Young entrepreneurs - Entrepreneurship during study - Entrepreneurial people - Active population

- Openness to NT - Motivation	- Existence of testing Cs for NT - Positive general readiness to U/ENT/ NT - Fast Conquest of new trends - Creative entrepreneurs - Developing entrepreneurship - Boldness in the IT sector - Changing the entrepreneurial mindset - Good conditions for U - Curiosity - High level of U, ENT and NT in HEI	
	- Some areas of HEI at the highest level - HEI elite uses international sources/ databases/infrastructure daily - Education of HEI students to use HPC - Jobs - High-performance researchers - The penetration of Western companies - Expanding global orientation in companies with high-tech development	
WEAKNESSES		
Advanced countries	Intermediate countries	Countries lagging behind
- Conservativeness - Avoiding G risk - G failure is considered a shame - Distrust into NT - Closeness - Closeness - Weak ties between HEI/IND - The population is not competent for Assessment - Lack of critical mas - Demotivation - Low level of innovativeness	- The weak links between HEI/IND impede the development of the R&D & I ecosystem - Negative attitude towards HEI by the public with low social status - IND avoids S with HEI - Competitiveness problems - Most low-tech companies - Conservative population - Conservative attitude of key players - Fear of the new - The disinterest of the HPC population in IND - Distrust of your capabilities - A small number of SMEs	- Followers/ non trendsetters - Conservatism - Unwillingness to experiment and use a creative approach - HPC benefits are not obvious to the majority of potential investors - Grey economy - Tax evasion

	-Low capacity of the R&D in the IND -Inefficient mechanisms for technology transfer -Lack of funds for entrepreneurial initiatives -The culture and attitude of the population is not connected to U, ENT and NT	
--	---	--

Sources: Data ('InnoHPC - Interreg Danube', n.d.); Analysis (Kolar, 2020).

Although the attitude towards Entrepreneurship is detected in all three groups of countries as a strength, we can see that in advanced countries it appears as already perceived as a high-level player, while in intermediate countries and countries lagging, the younger generation's aspirations go in the directions of Entrepreneurship and also creativity and new technologies, but mainly through Higher Educational Institutions – HEI.

While in a group of intermediate countries, a supportive environment for startups is perceived, in advanced countries group also higher Media coverage of R&D appears. Considering weaknesses, in the advanced group, we can find a high level of Conservativeness, which is reflected also through closeness and distrust towards new technologies – NT and there is also a perception that there are present also weak ties among industry – IND and Higher Educational Institutions - HEI. These weak ties are detected also in the intermediate countries group, with also additional challenges, i.e., problems of competitiveness, a conservative population, Inefficient mechanisms for technology transfer, lack of funds for entrepreneurial initiatives and low capacity of the R&D in the Industry.

Among weaknesses, that appear in the lagging group of countries, there is also conservatism, enriched by the perception that benefits of new technology (in research it was about HPC) are not perceived among investors and there is a considerably high level of disordered economy (grey economy).

It seems interesting that understanding that in a group of Danube region countries lagging behind, observation of being followers/non trendsetters appears in both, strengths and also weaknesses.

5.2 Competition

Table 9: Perception of competition – competitiveness in the country

COGNITIVE FRAMES – Table 2		
PERCEPTION OF COMPETITION – COMPETITIVENESS IN THE COUNTRY		
STRENGTHS		
Advanced countries	Intermediate countries	Countries lagging behind
- More important for competition - Positive attitude towards competition - Positive orientation competition - is a positive value - The desirability of a healthy competition - Competition encourages development - Competition brings Innovativeness and New Technologies - Solidarity of colleagues - Enthusiasm	- Positive attitude towards competition - A positive view of competition - Awareness of the benefits of competition in the Industry - A positive attitude HPC to competition - competition is the driver of the HPC development - competition contributes to Innovations and productivity - competition motivates for the development of NT - competition encourages progress - competition promotes improvements	- Solidarity and responsibility in the industry among actors - competition in IT - Needless competition for HPC - Competition is good for consumers - HPC reduces service costs - HPC services are more accessible
WEAKNESSES		
Advanced countries	Intermediate countries	Countries lagging behind
- Problems with Cooperation in companies with competition - Avoiding competition - HPC competition in HEI caused dispersed infrastructure/budget - SMEs are not ready to succeed in the global market - Promoting competition in Businesses - Raising competition - Lack of education competition	- Bureaucracy interferes with healthy competition/also HPC - Disloyalty government investment - Slow progress SMEs - High competition between SMEs - Monopoly is a key part - The unequal status of companies in certain sectors. - The deficit science staff - A low number of researchers - The decline of science careers - Departure of science teachers - Competitiveness - competition passes into a rivalry - Competition vs competitiveness	- Unfair relations weaken competition - The History of Disloyal competition - Promoting competition vs competitiveness - competition does not favour manufacturers

	- Lack of solidarity between companies - Lack of Cooperation for a total score - Not recognizing the benefits of HPC applications - The influence of the socialist regime is present	
--	---	--

Sources: Data ('InnoHPC - Interreg Danube', n.d.); Analysis (Kolar, 2020).

Interestingly, in all three groups of the Danube region countries, solidarity has been exposed as a strength, especially solidarity between Industrial and High-Tech sectors.

While competitiveness has been recognized in lagging countries as needless, in advanced countries group a positive attitude towards competitiveness can be observed. Intermediate countries group acted in this section as a kind of cross-section, as it was mentioned, on the side of strengths, that positive attitude towards competition/competitiveness encourages the development of HPC and penetration of HPC in industrial R&D, encourages innovativeness and productivity, and the development of new technologies in general. Further, it has been mentioned in the intermediate group, that competitiveness also influences improvements and progress.

On the side of weaknesses, the lagging group stated the prevalence of unfair competition, but on the other side of development, in advanced countries they missed competitive incentives in Business, Avoidance/impairment of cooperation among competitive companies and scattered HPC Infrastructure in Higher Educational Institutions.

Intermediate countries exposed bureaucratic obstacles as a weakness regarding the perception of competition/competitiveness, as well economic monopolies, lack of scientific personnel (due to brain drain) and overdone competition as a rivalry.

5.3 Learning processes

Table 10: To what extent do the attitudes and culture enable the learning processes (EDU) in the country

COGNITIVE FRAMES – Table 3		
TO WHAT EXTENT DO THE ATTITUDES AND CULTURE ENABLE THE LEARNING PROCESSES (EDU) IN THE COUNTRY		
STRENGTHS		
Advanced countries	Intermediate countries	Countries lagging behind
- UNI learning process - UNI professors - Willingness to modify HEI programs for the needs of IND	- Good practices of Innovative learning (HPC) - Specialized courses for HPC	- Willingness to learn - Great HR potential - Students promote HPC

- A general focus on EDU - Willingness to learn - Willingness to teach - Openness S IND - Openness to innovative processes - SMEs' interest in learning useful NTs - Curiosity - Successful sharing of experience	- The openness of young people to learn - The openness of the young generation to NT - More openness to NT - (In)formal EDU in IND/HEI - Informal EDUs reinforce Longlife learning - Informal EDU strengthens Longlife learning - Independent learning - Increasing R&I internationalization - Effective mechanisms of evolution - conditionality of funding - Efforts to improve IND	- Student Performance (Abroad / Competitions)
WEAKNESSES		
Advanced countries	Intermediate countries	Countries lagging behind
- Necessity of entrance exams - Postgraduate studies (not promoting openness for NT) - Conservative thinking of HEI - Failure is not learning / incorrect knowledge - A different mindset of generations - Lack of students in technical programs - Lack of students at technical universities and secondary schools - Fragility - Risks - Crossing cultural boundaries - The ability to co-operation - Hiding knowledge - Uncommunicativeness	- Conservatism - Conservatism in HEI/IND - Weak ties among HEI/IND - Obsolete way of teaching - Low level of EDU system - Lack of contemporary technology in HEI - Older/leading generations conservative about novelty - Conservatism of Public Administration - Brain drains - Talented study abroad - Departure of the best teachers - Lack of competent teachers - Migration of teachers - Weak IND - Late R&D&I yield of SMEs. - High competitiveness	- Lack of funding sources - Unattractive wages - The apathy of young people

Sources: Data ('InnoHPC - Interreg Danube', n.d.); Analysis (Kolar, 2020).

New and new technologies demand not only lifelong but constant and continuous learning, thus learning process establishment and management could be one of the crucial factors in efforts to obtain enough motivated and skilled personnel in the region.

In the lagging part of the Danube region, on this topic, if there is an assessment of a great HR potential and present willingness to learn, the apathy of young people – who are promoters of new technologies - has been mentioned, along with unattractive wages and

lack of funding sources. Moreover, humans can only truly actualise their humanity through the process of education (Kleindienst, 2024).

In intermediate countries, the situation is somehow different. Even though Conservatism and weak ties are detected in Higher Educational Institutions and in Industry, together with obsolete ways of teaching and lack of contemporary technology in Higher Educational Institutions, there are good practices of learning recognized, effective mechanisms of evolution and increasing R&D internationalization. Informal education in intermediate countries promotes and reinforces lifelong learning. As a strong obstacle in this way in intermediate countries, brain drain trends are reported, some conservatism in Industry and Higher Educational Institutions and competitiveness also.

6 Conclusions

As the world becomes smaller each day, especially through advanced digitalization and rapid digital transformation, redefinition of regions and (re)sources management might be in place. Geographical distance is no longer as relevant for the working environment as it used to be in the pre-covid era and many former challenges, earlier present “in the other region” could very fast become “our problem”. Not only pollution and energy supply (on the role of EU energy market, see more in (Klopčič et al., 2022) but also and foremost lack of competent and motivated people, so further rethinking of scope might be appropriate.

Demand for general, as well as specialized ICT Education and training, is obvious and general. Nevertheless, public perceptions are important and media reporting on national policies is important. More on the role of media is discussed in (Rončević et al., 2023) and (Uršič & Jurak, 2023).

It would be advisable to consider that National policies would grow into regional and even trans-regional policies to include at least some layers of changing environments.

Even though there are strong tendencies noticeable in some technologies to concentrate skills, knowledge dissemination and IPR in (even geographically) narrow areas, as in the case of Quantum computing (House, 2022), at least in the Danube Region, or in the EU, a reconsideration of priorities might be in place.

In the field of institutions, we have considered these views: National policy and Acquisition & Retention of talented people.

According to the above-mentioned Social Fields Theory by Beckert (Beckert, 2010b), Institutions influence the structure of social networks (Rončević & Modic, 2011), which we addressed by analyzing Network organization and perceptions of both, cooperation between actors and perception of trust. According to this model, Institutions also make

values socially relevant through the influence on cognitive frames, the third element of the Social fields Theory, where we researched perceptions of relations with Creativity, Entrepreneurship and New technologies, Competition and competitiveness, and also, to what extent do the attitude and culture influence/enable learning processes in the country.

As cognitive frames provide legitimization and shape perception of institutions (Rončević & Cepoi, 2021) , not only national policies but, more important, the capacity for acquiring and retaining young talented professionals depends on the level of cognitive frames. As cognitive frames, on the other side, shape the perception of network structures (Uršič et al., 2024), this can enable the organisation of networks, as well as the building of trust and level of cooperation in those networks.

All three groups of countries of the Danube region, as we have divided them, have a lot of common challenges, and, perhaps even more common solutions, as social environments become more and more interconnected and non-reliable on geographical distance. Thus developing talented people and therefore assuring a stable level of motivated and competent professionals may be also a question of scope.

European Union, not only any particular region inside the EU, seem to be the right measure at the moment.

Notes:

¹ GCI – Global Competitiveness Index (Schwab, 2019).

References:

- Autor, D. H., Levy, F., & Murnane, R. J. (2003). The skill content of recent technological change: An empirical exploration. *The Quarterly Journal of Economics*, 118(4), 1279–1333. <https://doi.org/10.1162/003355303322552801>
- Beckert, J. (2010). How do fields change? The interrelations of institutions, networks, and cognition in the dynamics of markets. *Organization Studies*, 31(5), 605–627. <https://doi.org/10.1177/0170840610372184>
- Besednjak Valič, T., Kolar, J., & Lamut, U. (2022a). Fighting the big bad wolf of global trends: Technology transfer between HPC centres and SMEs. *Digital Policy, Regulation and Governance*, 26(6), 498–512. <https://doi.org/10.1108/DPRG-11-2020-0162>
- Besednjak Valič, T., Kolar, J., & Lamut, U. (2022b). Tell me your companionship, and I will tell you who you are: The networks of university-industry collaboration in the Danube Region. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4139184>
- Besednjak Valič, T., Kolar, J., Lamut, U., & Pandiloska Jurak, A. (2023). Key policy mechanisms supporting university–industry collaboration in the Danube Region: Case study of academic HPC centres and SMEs. *European Journal of Management and Business Economics*, 32(5), 509–524. <https://doi.org/10.1108/EJMBE-09-2022-0283>
- Besednjak Valič, T. (2022a). Becoming a part of regional innovation systems: A study of cultural and creative sectors of two Slovenian municipalities. *Journal Global Policy and Governance*, 11(1), 117–132. <https://doi.org/10.14666/2194-7759-11-1-7>
- Besednjak Valič, T. (2022b). Open innovation and its impacts on interorganisational stability: A SOFIA perspective addressing sustainable growth in regional context. In B. Rončević & V. Cepoi (Eds.), *Technologies and Innovations in Regional Development: The European Union and Its Strategies* (pp. 79–98). Berlin: Peter Lang.
- Cepoi, V., & Pandiloska Jurak, A. (2023). Measuring the relevance and impact of innovation and social forces for transnational value chain's embeddedness in a region. *PLOS ONE*, 18(10), 1–18. <https://doi.org/10.1371/journal.pone.0291646>
- Citation - *The limits to growth; a report for the Club of Rome's project on the predicament of mankind*. (2019). Retrieved September 16, 2019 from <https://search.library.wisc.edu/catalog/999473210902121/cite>
- Džajić Uršič, E. (2020). *Morphogenesis of industrial symbiotic networks*. Berlin: Peter Lang.
- Džajić Uršič, E., & Pandiloska Jurak, A. (2023). Media literacy, active citizenship, and sustainable democracy: A case study of Slovenia. *Politics in Central Europe*, 19(s1), 393–407. <https://doi.org/10.2478/pce-2023-0018>
- Fric, U., Rončević, B., Gangaliuc, C., Pandiloska Jurak, A., Uršič, E., Besednjak Valič, T., & Cepoi, V. (2023). *Development and implementation of the EU grand strategies: Sociological, policy, and regional considerations of Agenda 2030*. Berlin, Germany: Peter Lang. <https://doi.org/10.3726/b20448>
- Fric, U., Rončević, B., & Uršič, E. D. (2020). Role of computer software tools in industrial symbiotic networks and the examination of sociocultural factors. *Environmental Progress & Sustainable Energy*, 39(2), e13364. <https://doi.org/10.1002/ep.13364>
- Fric, U., O'Gorman, W., & Rončević, B. (2023). Strategic competence model for understanding smart territorial development. *Societies*, 13(3), 76. <https://doi.org/10.3390/soc13030076>
- Golob, T., & Makarović, M. (2019). Reflexivity and structural positions: The effects of generation, gender and education. *Social Sciences*, 8(9), 1–23. <https://doi.org/10.3390/socsci8090248>

- Golob, T., & Makarovič, M. (2021). Sustainable development through morphogenetic analysis: The case of Slovenia. *Politics in Central Europe*, 17(1), 83–105. <https://doi.org/10.2478/pce-2021-0004>
- Golob, T., & Makarovič, M. (2022). Meta-reflexivity as a way toward responsible and sustainable behavior. *Sustainability*, 14(9), 1–19. <https://doi.org/10.3390/su14095192>
- Golob, T., Gorišek, M., & Makarovič, M. (2023). Authoritarian and populist challenges to democracy correspond to a lack of economic, social, and cultural capitals. *Societies*, 13(8), 1–12. <https://doi.org/10.3390/soc13080181>
- Granovetter, M. (1992). Economic institutions as social constructions: A framework for analysis. *Acta Sociologica*, 35(1), 3–11. <https://doi.org/10.1177/000169939203500101>
- House, The White. (2022). National security memorandum on promoting United States leadership in quantum computing while mitigating risks to vulnerable cryptographic systems. *The White House*. Retrieved from <https://www.whitehouse.gov/briefing-room/statements-releases/2022/05/04/national-security-memorandum-on-promoting-united-states-leadership-in-quantum-computing-while-mitigating-risks-to-vulnerable-cryptographic-systems/>
- InnoHPC - Interreg Danube. (2023). Retrieved July 27, 2023 from <https://www.interreg-danube.eu/approved-projects/innohpc>
- InnoHPC Project High-Performance Computing for Effective Innovation in the Danube Region Output 3.1. (2023). *Digital Transformation of Industry Guidelines with High-Performance Computing*. Retrieved from <http://www.interreg-danube.eu/innohpc>
- Kleindienst, P. (2019). Zgodovinski temelji sodobne paradigme človekovega dostojanstva. *Phainomena*, 28(108–109), 259–282. <https://doi.org/10.32022/PHI28.2019.108-109.11>
- Kleindienst, P. (2022). The role of Catholic schools in promoting human dignity. *British Journal of Religious Education*, 44(3), 348–360. <https://doi.org/10.1080/01416200.2021.1918059>
- Kleindienst, P. (2024). The role of education on human dignity: Fostering peace and diminishing violence. *Religions*, 15(1), 66. <https://doi.org/10.3390/rel15010066>
- Kleindienst, P., & Tomšič, M. (2018). Človekovo dostojanstvo kot del politične kulture v novih demokracijah: Postkomunistična Slovenija. *Bogoslovni vestnik: Glasilo Teološke fakultete v Ljubljani*, 78(1), 159–172.
- Kleindienst, P., & Tomšič, M. (2022). Human dignity as the foundation of democratic political culture: Legal and philosophical perspective. *Law, Culture and the Humanities*, 18(2), 385–404. <https://doi.org/10.1177/1743872117738229>
- Kolar, J. (2020). *Social aspects of technology diffusion: Danube Region HPC case; družbeni okvirji difuzije tehnologije: Primer HPC v podonavski regiji: Doktorska disertacija*. Nova Gorica. Retrieved from <https://plus.cobiss.net/cobiss/si/en/bib/25040131>
- Kolar, J., & Besednjak Valič, T. (2020). *Social aspects of technology diffusion. Danube Region HPC case*. London, Budapest, Ljubljana: Vega Press.
- Kolar, J., Lamut, U., & Besednjak Valič, T. (2020). Three scenarios of innovation and technology transfer: The case of key enabling technologies in the Danube Region. *Journal of Engineering and Applied Sciences*, 15, 3619–3623. <https://doi.org/10.36478/jeasci.2020.3619.3623>
- Kondratieff, N., & Snyder, J. M. (1984). *Long wave cycle* (G. Daniels, Trans.). New York, NY: E. P. Dutton.
- Klopčič, A. L., Rončević, B., & Besednjak Valič, T. (2022). The key player or just a paper tiger? The effectiveness of ACER in the creation and functioning of the EU's internal energy market. *The Electricity Journal*, 35(9), 107207. <https://doi.org/10.1016/j.tej.2022.107207>
- Kukovič, S., & Justinek, G. (2020). Modernisation trends in public administration in Slovenia. *Hrvatska i komparativna javna uprava: Časopis za teoriju i praksu javne uprave*, 20(4), 623–647.

- Laar, E. van, Deursen, A. J. A. M., Van Dijk, J. A. G. M., & Haan, J. (2020). Determinants of 21st-century skills and 21st-century digital skills for workers: A systematic literature review. *SAGE Open*, 10(January), 1–14. <https://doi.org/10.1177/2158244019900176>
- Mileva, B., Rončević, B., & Džajić Uršič, E. (2018). Modeling and evaluation of the possibilities of forming a regional industrial symbiosis networks. *Social Sciences*, 7(1), 13. <https://doi.org/10.3390/socsci7010013>
- Makarovič, M., Šušteršič, J., & Rončević, B. (2014). Is Europe 2020 set to fail? The cultural political economy of the EU grand strategies. *European Planning Studies*, 22(3), 610–626. <https://doi.org/10.1080/09654313.2013.78238>
- Modic, D., Hafner, A., & Valič-Besednjak, T. (2022). Every woman is a vessel: An exploratory study on gender and academic entrepreneurship in a nascent technology transfer system. In J. M. Azagra-Caro, P. D'Este, & D. Barberá-Tomás (Eds.), *University-Industry Knowledge Interactions: People, Tensions and Impact* (pp. 159–178). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-84669-5_9
- Modic, D., & Rončević, B. (2018). Social topography for sustainable innovation policy: Putting institutions, social networks and cognitive frames in their place. *Comparative Sociology*, 17(1), 100–127.
- Schwab, K. (2019). *The Global Competitiveness Report 2018*. Retrieved from <https://www.weforum.org/publications/how-to-end-a-decade-of-lost-productivity-growth/>
- Pandiloska Jurak, A. (2024). The EU macro-regional strategies through the prism of regional GDP. In S. Kukovič & I. Radevič (Eds.), *Contemporary Pathways of European Local and Regional Development* (pp. 69–82). Maribor: Institute for Local Self-Government Maribor. <https://doi.org/10.4335/2024.1.5>
- Rončević, B., & Modic, D. (2011). Regional systems of innovations as social fields. *Sociologija i Prostor: Časopis za istraživanje prostornoga i sociokulturnog razvoja*, 49(3 (191)), 313–333. <https://doi.org/10.5673/sip.49.3.3>
- Rončević, B., & Besednjak Valič, T. (2022). *An active society in a networked world: The cultural political economy of grand strategies*. Berlin, Germany: Peter Lang. <https://www.peterlang.com/document/1272665>
- Rončević, B., Modic, D., & Golob, T. (2022). Social-fields-approach (SOFIA) to research on social change: Innovations as social fields. In *Technologies and Innovations in Regional Development: The European Union and its strategies* (pp. 9–28). Berlin, Bern, Bruxelles, New York, Oxford, Warszawa, Wien: Peter Lang.
- Rončević, B., Tomšič, M., & Besednjak Valič, T. (2023). How media pluralism navigates ideological orientations: The case of Slovenia. *Frontiers in Communication*, 8. <https://doi.org/10.3389/fcomm.2023.1143786>
- Tyulin, A. E., Chursin, A. A., Ragulina, J. V., Akberdina, V. V., & Yudin, A. V. (2023). The development of Kondratieff's theory of long waves: The place of the AI economy humanization in the 'competencies-innovations-markets' model. *Humanities and Social Sciences Communications*, 10(1), 1–13. <https://doi.org/10.1057/s41599-022-01434-8>
- Uršič, E. D., & Jelen, I. (2022). From industrial district to industrial symbiosis: An opportunity. The case of the Ponte Rosso Industrial Area, Italy. *Acta Geographica Slovenica*, 62(3), 21–32. <https://doi.org/10.3986/AGS.10513>
- Uršič, E. D., Fric, U., & Rončević, B. (2024). The circular economy: Recent debates and research trends. *Journal of Infrastructure, Policy and Development*, 8(3). <https://doi.org/10.24294/jipd.v8i3.2855>