

Institution: University College London		
Unit of Assessment: UoA 25 – Area Studies		
Title of case study: Successfully providing expertise on innovation policies in the EU and in Central and Eastern Europe		
Period when the underpinning research was undertaken: 2000-2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): Slavo Radosevic	Role(s) (e.g. job title): Professor of Industry and Innovation Studies	Period(s) employed by submitting HEI: 1999 – present
Period when the claimed impact occurred: 2013-2020		
Is this case study continued from a case study submitted in 2014? No		
1. Summary of the impact (indicative maximum 100 words) <p>Prof Radosevic's research explores innovation processes and 'technology upgrading' in emerging and transition (i.e. post-communist) economies. He concludes that, in such economies, 'smartly' adapting and implementing existing technologies, with regard for local conditions, is often more appropriate than prioritising innovation. The smart specialisation approach reflects 'new' industrial policy thinking which assumes that constraints to growth are not known in advance but need to be 'discovered' through an organised policy search process and appropriate methodology. This contrasts with conventional views on innovation policy. The research influenced perceptions of policymakers and international organisations: The European Union (EU); United Nations Economic Commission for Europe (UNECE); Organisation for Economic Co-operation and Development (OECD); European Bank for Reconstruction and Development (EBRD), and the World Bank. It impacted design and shaping of innovation policy across Central and Eastern Europe (CEE) and Former Soviet Union (FSU), with particular reference to developing smart specialisation policy and assessing the success of innovation policy. This allowed the development of more effective innovation policies.</p>		
2. Underpinning research (indicative maximum 500 words) <p>For more than 20 years Prof Radosevic has explored innovation and technology as drivers of growth in emerging and transition economies. Specifically, his research points to differences in modes of innovation and innovation policies of countries whose growth is driven by technology import and non-R&D capabilities [R1]. The central idea comes from Schumpeterian growth theory (Aghion et al.) which argues that countries behind the technology frontier grow based on technology transfer and production capabilities rather than on frontier technology generation [R2]. The challenge is how to design industrial and innovation policies so they promote modernisation and drive structural change in economies whose firms are laggards or followers.</p> <p>Research by Prof Radosevic and colleagues has applied and developed this theoretical understanding of technology-based growth in a specific region of the contemporary world: emerging and transition economies of CEE and FSU. Their new conceptual framework is called 'technology upgrading', defined as the process of enhancing technological capabilities of firms, sectors, regions or countries, as outlined by Radosevic and Yoruk in their 2018 journal article, [R3]. Technology upgrading is not about the simple accumulation of stock of capital or productivity improvements at the existing technological level; rather, it is about the accumulation of a range of diverse capabilities (production, technology, R&D, etc.), their structural transformation and the coupling of domestic technology efforts to technology transfer. This framework has been empirically explored through comparative metrics and is being further developed by Prof Radosevic and colleagues in ongoing research. It is much more policy relevant for these economies than conventional innovation indexes like the Global Innovation Index.</p>		

Similar to other emerging economies, CEE economies do not grow based on research-driven innovation, whereby domestic research produces innovation that leads to growth; instead, their innovation activities are about absorption and adaptation of knowledge embodied in imported equipment and inputs. However, this situation has not been reflected in policy, which has tended to be overly focused towards the traditional idea of research-driven growth [a finding within **R4**, **R5**]. Existing policies neglect sources of productivity growth, such as management practices, skills, quality, and engineering. CEE countries would be better served by enacting policy that encouraged improvements in production and engineering capability [**R1**]. This, in turn, would generate the demand for local R&D and innovation, which is currently low.

The research that forms the basis for the impact described in this study shows that the EU consists of a grouping of countries whose firms operate at quite different distances from the technology frontier. The future growth of Central and Eastern Europe (**CEE**) depends on upgrading technology and exporting and coupling domestic with international technology efforts, while improving their position in global value chains [as detailed in **R4**, **R5**]. A critical insight from Prof Radošević's research is that regional strategies are overly inward-looking and that much more inter-regional cooperation and opening regions to cooperation with global value chains is needed. Prof Radošević explored this issue in his co-authored paper which was published in full as a European Commission Joint Research Centre working paper, and in reduced form as an academic paper [**R4**]. In a 2015 book chapter, Radošević found that current policies in the region are not geared to these tasks, despite the availability of huge financial opportunities in the form of EU structural funds [**R6**].

The underpinning research received external funding, including European Commission (**EC**) H2020 and FP7, as well as Prof Radošević's appointment to a succession of expert assignments the EC Directorate General for Regional and Urban Policy, the UN Economic Commission for Europe programme, World Bank, and German Organisation for International Cooperation. Funding was also received from the Romanian Agency for Higher Education and the EC for a book project.

3. References to the research (indicative maximum of six references)

- R1.** Kravtsova, V. and S. Radošević (2011) 'Are systems of innovation in Eastern Europe efficient?', *Economic Systems*, doi:10.1016/j.ecosys.2011.04.005.
- R2.** Radošević, S. and A. Kaderabkova (eds) (2011) *Challenges for European Innovation Policy: Cohesion and Excellence from a Schumpeterian Perspective*, Edward Elgar, Cheltenham.
- R3.** Radošević, S. and E. Yoruk (2018) 'Technology upgrading of middle-income economies: A new approach and Results', *Technological Forecasting & Social Change*, 129, pp. 56–75.
- R4.** Radošević, S. and K. C. Stancova (2015) 'Internationalising Smart Specialisation: Assessment and Issues in the Case of EU New Member States', *Journal of the Knowledge Economy*, doi:10.1007/s13132-015-0339-3 (open access article).
- R5.** Radošević S. (2017) 'Upgrading technology in Central and Eastern European economies'. IZA World of Labor 2017: 338 doi: 10.15185/izawol.338 available at: <https://bit.ly/3bNJm2E>
- R6.** Radošević, S., A. Curaj, R. Gheorghiu, L. Andreescu and I. Wade (eds) (2017) *Advances in the Theory and Practice of Smart Specialisation*, Academic Press, Elsevier Science Publishers. More specifically: S. Radošević 'Assessing EU Smart Specialisation Policy in a Comparative Perspective' (Chapter 1) and S. Radošević 'Advancing Theory and Practice of Smart Specialisation: Key Messages' (Chapter 15) available at: <https://bit.ly/3vlo03b> & <https://bit.ly/30JwAvR>

R1, **R3** and **R4** appeared in peer-reviewed journals; **R2** and **R6** in peer-reviewed volumes by major publishers; **R5** on the online platform of an internationally renowned research institute.

Grant details:

2018-2019 World Bank project team leader: 'Path for Ukraine's economic growth: technology upgrading', USD50,000

2015-2016 Book project funded by Romanian Agency for Higher Education: 'Advances in theory and practice of smart specialisation', Academic leader of a group of 17 experts in area of innovation, industrial and regional policy. EUR30,000.

2012-2015 GRINCOH: Growth - Innovation – Competitiveness: Fostering Cohesion in Central and Eastern Europe, EU FP7, Collaborative project, partner and coordinator of the UCL team (EUR3,200,000) (UCL part GBP320,000)

4. Details of the impact

Prof Radošević is recognised as one of the leading European academic specialists in innovation policy issues and as the leading expert for innovation and economic growth in the former socialist countries. According to a Head of Unit in the EC Directorate General for Regional and Urban Policy [A]: 'Professor Radošević has made an essential contribution to the development of innovation policies for less developed regions, which is recognised not only in the European Commission, but also by the World Bank, the OECD and many of our Member States'. Radošević's research has generated two lines of impact: firstly, within the EU, and secondly, outside the EU.

Impact in the EU: Influencing the design and shaping of innovation policy in less developed EU countries and regions, with particular reference to smart specialisation policy: taking into account inter-regional and global value chains.

Prof Radošević's contribution is based on a body of research exploring the interaction between innovation and growth of CEE countries [R1-6] and expertise on translating research into policy. Between 2014 and 2020 Prof Radošević assisted the EC Directorate General for Regional and Urban Policy in evaluating 'smart specialisation' strategies in Bulgaria, Slovakia and Slovenia and also worked directly for the Croatian government. The Secretary to a Government Office in the Slovenian Ministry of Economy [B] described his advice as being among 'the most useful comments I have ever received to a programming document - and I am working on this for the last 15 years'. From 2015-19 Prof Radošević served as Special Advisor to the EC Commissioner for Regional and Urban Policy. These high-level appointments directly engaged Radošević in the shaping of regional innovation policy in the EU.

Prof Radošević brought together policymaking communities.

For example, as part of its activities to improve inter-regional cooperation in smart specialisation, the EC asked Prof Radošević, with Jacek Walendowski, to co-author a comparative analysis, assessing synergies and areas of potential cooperation related to Smart Specialisation Strategies in Central Europe: this was published in 2016 as a 173-page EC report. Based on this, Prof Radošević was invited to moderate a Networking Workshop on Smart Specialization Cooperation in Central Europe in Zagreb in December 2016. Additionally, supported by funding from the Romanian Agency for Higher Education, Prof Radošević gathered a group of 17 world and European experts in innovation policy to explore critically Smart Specialization Strategy (S3) in comparative international context [R6]. With Dominique Foray (Lausanne University) and Kevin Morgan (Cardiff University), Prof Radošević was invited to several important policy events, and they co-authored two policy papers (all authors having equal roles) addressing the relationship between EU S3 and Research & Innovation policies [C.1, C.2].

Radošević's research and advice helped shape EC policy.

According to [A], a Head of Unit in the EC Directorate General for Regional and Urban Policy, 'Radošević's work was particularly influential in shaping the conclusions that the European Commission drew about the need to adopt a specific approach to innovation in less developed Member States, in its Communication [to the European Council and Parliament] on Smart Specialisation and accompanying working document' [D]. Communication [D] twice (pp. 24, 32) refers to research [R4] by Prof Radošević in the context of increasing realisation that the smart specialization strategies in 2020-2027 period should strengthen the role of inter-regional and global value chains.

[A] further comments: 'His work constituted a major contribution to the development of a new policy instrument for interregional innovation investments to be launched in 2021, which will have a dedicated budget for strengthening global chains in less developed regions... His work on innovation, productivity and global value chains in Central and South Eastern Europe has made a significant contribution to shaping the development of the policy... Many of Professor Radosevic's suggestions in relation to smart specialisation in less developed regions and interregional cooperation were taken into account in the Commission's 2018 legal proposals for Cohesion Policy, which have since been endorsed by Member States and the European Parliament' [in Communication D].

Furthermore, Radosevic's joint advisory work with Profs Foray and Morgan helped shape the relationship between R&D and regional innovation policy in the next EC programming period (2020-2027) [C.1, C.2]. Their policy paper [C.1] was one of the key materials accompanying the EC's 2018 launch of a programme to support ten EU regions and two small member-states (Lithuania and Slovenia) 'develop or redesign strategies for regional economic transformation based on their smart specialisation priorities i.e. the regions' niche areas of competitive strengths' [C.3].

4.2. Impact beyond the EU. Developing a framework for assessing innovation policy in the UNECE (UN Economic Commission for Europe) economies: Ukraine, Belarus, Armenia, Tajikistan, Kyrgyzstan and Western Balkan economies; applying S3 in EU candidate and Neighbourhood countries.

In 2014-2020, Prof Radosevic was involved in analyses of the innovation capacity of the UNECE economies. As a member of the UNECE Team of Specialists on Innovation and Competitiveness Policies, Radosevic has generated significant methodological impact in UNECE economies, which also has the potential for application to other emerging economies.

Since 2014 Prof Radosevic has acted as an expert assessing the innovation capacity of Ukraine, Armenia, Tajikistan and Kyrgyzstan. Based on a favourable assessment of prior work in 2011 for Belarus, Radosevic was invited by the UNECE to participate in the second assessment of Belarusian innovation capacity, published in 2015 [E]. [F], an Economic Affairs Officer at UNECE, highlights Radosevic's active involvement in developing 'national reviews of innovation policy carried out at the request of UNECE Member States', which he identifies as 'the flagship capacity building product of the UNECE Innovative Policies Development Section.' In 2015, Radosevic was invited by UNECE to contribute to a review of methodologies for assessing innovation capacities in UNECE. In 2018, Prof Radosevic was invited to develop a benchmarking exercise for assessing innovation policy in emerging economies, which would be suitable and implementable in UNECE economies. The draft methodology was discussed with UNECE economies country representatives and experts at the Ukrainian Academy of Sciences in Kyiv on 14.11.2017. Subsequently, the methodology was adapted and converted into the UNECE Policy Innovation Outlook [G.1].

Radosevic led on the production of a formalised method for assessing innovation policy which was piloted in the six Eastern Partnership countries (Armenia, Azerbaijan, Belarus, Georgia, Moldova and Ukraine) and in 2019-20 as the Assessment Framework and Measurement Methodology for the Sub-Regional Innovation Policy Outlook (SRIPO) [G.1-G.3]. This tool is based on research papers by Prof Radosevic, e.g. [R3, R6]. The project, funded by SIDA (Swedish International Development Cooperation) was 'based on a solid understanding of the economic, political, structural, historical, and institutional factors that strongly influence innovation-led development' in the region [G.2], reflecting Prof Radosevic's expertise in this area. [F], a UNECE Economic Affairs Officer, notes that in 2020 SRIPO is being peer-reviewed 'by leading international experts' for extension to other UNECE countries. [F] acknowledges 'the exceptional impact of the conceptual and intellectual contributions [to the project] provided by Professor Radosevic.'

Furthermore, because of his research on innovation capacities and innovation policies in emerging economies [R2, R1], in 2016 Prof Radosevic was asked by the EC Joint Research Centre in Seville to explore the conditions under which the EU's Smart Specialisation model (S3) could be applied in the EU enlargement and neighbourhood (E&N) countries (i.e. the 7 candidate and 16 countries neighbouring the EU). Radosevic was the main author of the ensuing (2016) report [G.4], which has informed the EC's development of its S3 approach to E&N countries.

Based on his understanding of innovation and industrial policy issues in the post-Soviet region [R2,R1] and his previous work on the analysis of innovation capacity in Ukraine, Prof Radosevic was invited by GIZ (German Agency of International Cooperation) to assist the Ukrainian government in its ongoing work on industrial policy and, as a continuation of this work, Prof Radosevic was asked by World Bank to lead a small team of researchers to explore technology upgrading in Ukraine, including its ICT sector. In 2019 the WB published their report 'Path for Ukraine's Economic Growth' [H], which directly draws on research by Prof Radosevic on technology upgrading. He also spoke at a number of internal events organised at the European Bank for Reconstruction and Development.

In summary, as [F] comments, Prof Radosevic 'has contributed significantly to policy reforms to support sustainable development in Eastern Europe, the Caucasus and Central Asia'.

5. Sources to corroborate the impact (indicative maximum of 10 references)

A Testimonial email: EC DG Regional and Urban Policy

B Testimonial email: Slovenian Ministry of Economy

C.1 D. Foray, K. Morgan and S. Radosevic (2018) 'The role of smart specialisation in the EU research and innovation policy landscape'

C.2 'From rivalry to synergy: R&I policy and cohesion policy': both EC Directorate General for Regional and Urban Policy Working Papers: <https://bit.ly/30KDPE0>

C.3, European Commission: announcement of project launch, 07/03/2018: <https://bit.ly/38GDrug>

D. Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL laying down common provisions on the European Regional Development Fund, etc., COM(2018) 375 final, 2018/0196 (COD), Annex IV, Enabling Condition for Smart Specialisation. <https://bit.ly/30KEB3S>

E. UNECE and State Committee on Science and Technology of the Republic of Belarus, International Conference 'Better Policies for More Innovation: Assessment – Implementation – Monitoring', Minsk, 17- 18 November 2015 <https://bit.ly/3eDqmWD>

F. Testimonial email: UNECE Geneva

G.1. UNECE Subregional Innovation Policy Outlook <https://bit.ly/3tpCuyH>

G.2. Assessment Framework and Measurement Methodology for the Subregional Innovation Policy Outlook: <https://bit.ly/3liz4L1>

G.3. Radosevic, S (2020) 'Benchmarking innovation policy in catching up and emerging economies: Innovation policy index methodology', UCL Centre for Comparative Study of Emerging Economies Working Paper: <https://bit.ly/2PU6gwP>

G.4. 'The Role of Smart Specialisation in the EU Enlargement and Neighbourhood Policies' (Danube INCO.NET project) <https://bit.ly/3eEiEXi>

H. Radosevic, S., R. L. Bruno, C. S. Hayter and A. Aridi (2019) 'Path for Ukraine's Economic Growth: Technology Upgrading'. Washington, D.C.: World Bank Group. <https://bit.ly/30M0QWQ>