

Knowledge transfer and mobility: EURAXESS role in Europe

ELISSAVETA GOUROVA

Faculty of Mathematics and Informatics, Sofia University
125, Tzarigradsko shosse Blvd., bl. 2, Sofia
BULGARIA

elis@fmi.uni-sofia.bg <http://www.fmi.uni-sofia.bg>

DIMITRIOS SANOPOULOS

Head of Liaison Office, CERTH / Coordinator of the Greek Euraxess Network
6th km Harilaou-Thermi Rd., Thermi Thessaloniki
GREECE

sanopoul@certh.gr <http://www.certh.gr>

Abstract: The present paper provides an insight into the European environment for career development of researchers, knowledge transfer and transnational mobility. A special focus is paid on the pan-European network EURAXESS – providing results from a recent survey among researchers in 8 European countries. The paper considers its present role for mobile researchers and the future scenarios for EURAXESS in 2025 as a useful tool promoting policies related to Researchers career.

Key-Words: European policy for researchers, researchers career, mobility, knowledge transfer

1 Introduction

In the knowledge economy research, innovation and lifelong learning have gained special attention at policy level world-wide as knowledge residing in minds of people and embodied in new products and services becomes a critical resource and a vehicle for success, competitiveness and growth. The emergence of new scientific disciplines, the demographic changes in developed countries, the decline of state funding for research and higher education have created new challenges for research organizations and have raised their need to look for research funding from industry [1]. Many countries have supported the access of companies to knowledge generated by researchers from public sector by various initiatives taking into account that innovation is built on collective knowledge sharing and collaboration between different individuals and groups [16]. The European Union (EU), for example, has stressed the importance of research collaboration and the role of researchers in the process of knowledge creation, transfer and usage. Similarly, for OECD the mobility of the highly-skilled workers plays a crucial role in the creation and diffusion of knowledge [2]. It has become an indispensable element of the career trajectory of researchers in all disciplines [3], [17].

The mobility of researchers, and more broadly, the migration flows of the highly-skilled individuals, is discussed by the research community for years [4], [7]. The push and pull factors have gained special attention, as well as the benefits and losses by the sending and

host countries. Considering how to maximise the potential gains of mobility, several researchers pointed out the importance of mobile people as transmitters of technology and tacit knowledge [5], [6], [13], [17]. For companies, in particular, incoming researchers influence strongly their innovation performance through access to high-value knowledge, and thus provide higher competitive advantages [16].

While the initial debates stressed the brain-drain and the losses for the sending country, recently the benefits of the brain-circulation dominate. How to convert knowledge into socio-economic benefits, how to facilitate knowledge transfer, and how to enhance European excellence in research and technology development (RTD) – all these issues are discussed at several fora in Europe. In the last few years a number of initiatives have been launched by the EU in order to boost research, innovation and technology uptake in Europe, and to facilitate the career and mobility of researchers [15]. In line with the EU researchers' career policy, the project 'European Career of Researchers' (E*CARE) funded by FP7 program tries to investigate the situation in 8 countries in South East and Central Europe and to raise the debates at national level for providing better environment for researchers [11]. It focuses in particular on the changing environment for researchers in Europe and the role of EURAXESS Service Centers (ESC). A special emphasis is made on the awareness and usage of the EU tools for researchers, and how ESC may further support the knowledge transfer and innovation in Europe.

2 Environment for career and mobility of researchers in Europe

Today the growth of the new economy depends on the production of new knowledge, its transmission through education and training, its dissemination, and finally its exploitation in industry and society. While RTD organizations are mainly dedicated to the development of science and technology for the benefits of the economy and the society, universities have a more broad and multidimensional role. Beyond the creation and processing of knowledge, their tasks include transmitting of knowledge during the teaching process, but also are linked to a permanent communication of scientific achievements to the industry and the society. The role of research organisations and universities in the knowledge society poses several challenges to them, including to change and to respond much better to the needs of the industry for knowledge and competencies, and the society in general. Public universities have faced a difficult process to adapt to the requirements for degrees and transferability of skills, as well as to keep their position on the competitive market for educational services in Europe. Besides, all public research institutions are struggling of not sufficient funding. Despite all efforts at EU level to ensure at least 3% of GDP for RTD, the investments in Europe are still far below the desired level, and almost twice less than those in the USA [1], [26].

Researchers have a central role to play in the on-going processes of change, and in knowledge creation, transfer and application. It is not surprising that EU pays special attention to human resources in RTD, and in particular to young researchers, and considers the need for increasing their number in order to face the challenges of the knowledge economy. EU acknowledges as well the positive impact of the mobility of the highly-skilled workers for both, receiving and sending country. Researchers mobility, in particular, supports the transfer of knowledge, higher innovation, entrepreneurship and creativity in the host country. For sending countries, a benefit is the opportunity for gaining external knowledge and expertise, and access to global networks through the Diaspora networks [7], [15], [17].

Following the Lisbon goals, the research landscape in Europe has changed in the last few years. Specific measures were taken for building a European Research Area (ERA), as well as for establishment of European Research Council and European Institute of Technology [11]. In this process the career and mobility of researchers have deserved particular attention. Since launching the ERA in 2000, a number of EU measures were targeted at building a European labour market for researchers and taking the maximum benefits of their

mobility, knowledge and networking, as well as attracting researchers to Europe and providing excellent opportunities for their work and career development. Some important actions deserve particular attention:

- The Mobility strategy of 2001 [8] focused on turning the ‘brain drain’ into ‘brain gain’ and using the ‘brain circulation’ of researchers for the benefits of the new economy and the society in Europe as a whole. Developing a network and a portal to help researchers in their mobility, and to provide them targeted assistance and tailored and updated information, are essential for overcoming the mobility barriers, and resulted in building present EURAXESS network and strengthening the pan-European collaboration of ESC. Today EURAXESS is an EU initiative for facilitating the free movement of knowledge within Europe, and in particular of transnational and intersectoral mobility of researchers. It is the umbrella of four partial initiatives targeted at researchers in Europe: EURAXESS Jobs, EURAXESS Services, EURAXESS Rights and EURAXESS Links, and provides a single access point to information and personalised assistance to mobile researchers in 37 countries across Europe.

- The emphasis on career development of researchers found its expression in the European Charter for researchers and Code of Conduct for the recruitment of researchers (C&C) [9]. C&C is part of EURAXESS Rights and sets out the roles and responsibilities of researchers and their employers and sponsors, as well as focuses on greater transparency of the recruitment process and providing better career perspectives and stability of researchers’ jobs.

- The funding for researchers’ mobility and career development is supported by an increase of the Marie Curie (MC) Actions budget under the FP7 Specific Programme People [10].

- The Scientific visa is another tool in order Europe to attract 3rd countries researchers [25].

There is still a lot to be done in issues like pension schemes, social security arrangements, recruitment channels and work conditions. Another difficulty is the diversion on national level endorsement of all the aforementioned policies on national level. For example, old-fashioned legislation in several new member states of the EU, and the outdated practices around Europe have prevented building a genuine European labour market for researchers, as well as providing clear prospects for their career advancement. The skills development process of scientists does not prepare them for the knowledge economy, for moving between sectors and countries, as well as for working in competitive environment [18], [19], [20]. Ageing of researchers and the not sufficient attractiveness of the job for young people did not find a proper solution in the last few years despite the efforts at EU level. The

salaries vary from country to country, and a common practice is to hire young researchers on part-time bases without clear career advancement prospects [15], [21]. Therefore, a new Commission’s initiative in 2008 pointed the existing barriers and problems for the research labour force in Europe [14]. The aim of the European partnership for researchers is to accelerate progress in key areas including social security, competition based transnational recruitment and portability of funding, employment and working conditions, and training and skills. It represents a commitment of European and national institutions for taking measures in four important areas:

- to ensure open and transparent recruitment of researchers, including job advertisement at the EURAXESS portal, and to establish procedures for recognition of diplomas and qualifications from other countries and sectors;
- to provide social security and supplementary pension opportunities to mobile researchers, and increase their awareness on the respective rights and practice;
- to ensure attractive employment and working conditions for both young and experienced researchers by applying the ‘flexicurity’ principle;
- to equip researchers with skills and competences necessary for working in open and competitive environment, for clear communication of ideas and undertaking innovation and entrepreneurial activities.

3 E-CARE project

In response to the EU focus on researchers’ career and mobility, a consortium of 8 partners from Austria (AT), Bulgaria (BG), Czech Republic (CZ), Cyprus (CY), Greece (EL), Hungary (HU), Slovakia (SK) and Switzerland (CH) launched the project E*CARE with a main goal to strengthen ESC and to enhance the collaboration among Centres with different backgrounds on the basis of shared experience, exchange of good practices and tools. In order to analyze the state-of-the-art related to researchers’ career and mobility and to examine implementation issues regarding the European policies on national level, in all project partners’ countries were carried out two surveys using the same methodology directed to the specified target groups [11]:

- Questionnaire for Researchers – including four sections: Persisting Barriers (legal, administrative, social, cultural, practical, etc.), Intersectoral Mobility (mobility from public to private sector and vice-versa), Researchers’ Mobility Support, and Personal Information
- Questionnaire for Stakeholders – including two sections: Persisting Barriers and Personal Information.

As a further step of the project, in March 2010 a collaborative learning workshop was held for brainstorming how to raise the awareness of researchers on ESC and building scenarios for ESC in 2025.

The E*CARE survey focused, initially, on the implementation of C&C and the Mobility Strategy of the EU, as well as it investigated the popularity of some EU initiatives in the researchers’ community (Fig. 1). The results show that MC Actions are with the greatest popularity among the respondents from 8 European countries (60%), and on next position are the Lisbon Strategy Goals (27%). The creation of a European labour market for researchers and the introduction of a “scientific visa” package are less popular (with 8% and 7% respectively). The survey shows also that EURAXESS Jobs Portal and ESC have low visibility among researchers (9%), and only 7% used them as a source of information. For example, only 5% of the respondents benefited from the services of the EURAXESS Jobs portal or a national Researcher’s mobility portal, while 55% did not. Researchers rely mainly on the information provided them by colleagues, friends, etc. (60%) or by their own institution.

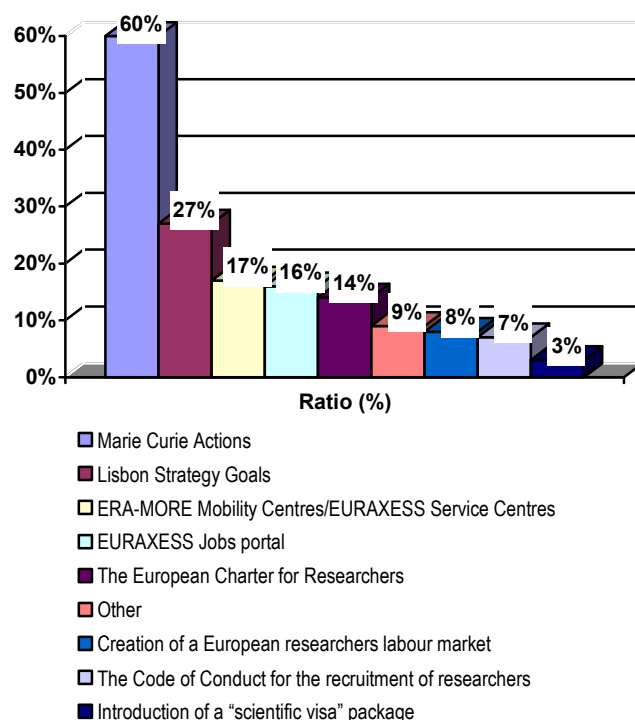


Fig. 1 Awareness on European initiatives for career and mobility of researchers

According to the survey results, only 6% of all respondents benefited from the services of ESC, while 82% did not. Among the former, 4% were fully satisfied and 2% were satisfied with some aspects, while others were not satisfied. ESC helped

researchers in the following main areas:

- Providing valuable information about working conditions in the host country, about procedures, risks, etc.
- Control and help in preparing the application
- Relocation arrangements – taxation issues
- Personal assistance concerning extension of visa
- Advertisement of open positions
- Administration issues.

However, researchers would like some more services offered by ESC, for example:

- classification of mobility options
- reliable job offers
- more possibilities for graduates without PhD
- network and reintegration grants
- making aware of national initiatives in countries abroad

The survey results were discussed at a workshop of E*CARE project in March 2010, and an internal brainstorming resulted in some promotion measures that could be suggested to EC in order to be exploited by the pan European EURAXESS network . This activities could be: Higher usage of Web 2.0 opportunities, including social networks, wikis, blogs, etc. (especially useful for young researchers), e-libraries, e-journals and e-databases, where the availability of some banners or other type of advertisement for ESC and the EURAXESS Jobs portal would be helpful. Finally, the traditional media should be also used more efficiently, and some partnerships could be sought for advertisement purposes. Last, but not least, dissemination of EURAXESS materials or even organisation of stands at educational and research events, including conferences, congresses or fairs could be very positive.

4 Scenarios for EURAXESS in 2025

The future is uncertain. While it may seem to be beyond any influence, in reality many aspects of the future could be predicted in some extend. Foresight is a way of studying the uncertainties and areas of possible influence, and exploring multiple possible futures. It increases the speed of responding to changes in the environment, and helps to prepare for the future, and to identify strategies that will be robust against a range of possible future paths [22]. Scenarios are a tool for identification of multiple pathways and alternative futures, and allow decision makers to anticipate and understand risk and to discover new options for action, and to reveal the choices available and their potential consequences. Generally, they offer a non-linear and dynamic way of thinking, require ability to deal with complexity, to consider multiple variables

simultaneously, and with ‘different interpretation’ over time [23], [24].

The E*CARE Collaborative workshop took place in Zurich on 18-19 March 2010. For preparing scenarios on EURAXESS in 2025 the participants were divided into two groups asked to consider different focal issues:

- What will be the range of needs of EU grant making community in 2025?
- As public funding is a catalyst and private capital is needed to organize deliver solutions, what will success look like for EURAXESS in 15 years?

Both groups had to study possible Driving Forces, which were categorized into "Predetermined Elements" and "Critical Uncertainties" (Table 1).

Table 1: Shaping the future in 2025

Critical Uncertainties for 2025	<ul style="list-style-type: none"> • the EU's share of ERA-wide public, non-military research funding doubles to 10% • 30% of all scientists are trained in research fields relevant to the Grand Challenges (climate change, energy supply, water resources, ageing, health care, sustainable prosperity) • EU has a fully functioning, independent Chief Scientific Advisor, supporting its decision-making • mobility of researchers between the public and private sector is high and industrial funding of academic research accounts for 1/3 of the overall research budget. • a pan-European label - 'Open Knowledge Institution' for higher education and research acts as a gold standard for excellence in innovation in the ERA • Europe has increased its share of top-ranking universities up to 40% of the top 20 and top-100 rankings and increased its most-cited research worldwide by a third
Predetermined Elements in 2025	<ul style="list-style-type: none"> • Nearly 2/3 of the world population will live in Asia and the centre of gravity will move towards Asia. The group made up of Japan-China-India-Korea will weigh as much as the EU. • The population of the European Union will account for 6.5% of the world population. • Research will develop outside the countries traditionally considered as leaders, and the USA and Europe will have lost their scientific and technological supremacy for the benefit of Asia. • International migrations will develop and, without important inflow of immigrants, the European population would start to decrease as from 2012. • The global health situation is improving but new risks are emerging. • The new geopolitics of energy is characterized by a relative balance of the strategic importance of the Middle East, Russia and the Caucasus.

The first group developed four scenarios (Figure 2). It considered as main drivers the type of orientation in Europe – EU or national one, and the character of actions taken – globalised or introvert. On its side, the second group developed four scenarios (Figure 3) considering as main drivers the political and social factors – strong EU with unified policy or fragmented EU and division into two blocks, and economic/financial drivers – strong/well developed or weak economy in Europe.



Fig. 2 What will be the range of needs of the EU grant-making community in 2025?



Fig. 3 What will success look like for EURAXESS in 15 years?

The scenarios show that EURAXESS could follow many pathways in the future. It depends on the decisions taken today, and the consequent actions at pan-European and national levels, how it will develop in 15 years time. EURAXESS needs to adapt to the new circumstances, to be more proactive not only in Europe, but to extend its focus on researchers in third countries and in industry.

5 Conclusion

Presently, the mobility of the highly-skilled scientists is part of the globalization processes world-wide. It provides opportunities for international knowledge transfer, as well as finding talents and skills not available on the national labour market. In Europe, the mobility of researchers is considered of high value, and of fundamental importance for the efficient operation of ERA. The European Commission has created institutional and funding tools in order to enhance researchers' mobility and tackle the ever-challenging phenomenon of "brain drain". However, it is not only a European issue, but a global one, having to do with the absence of attractive reintegration possibilities and career prospects for researchers. Thus, since international mobility is considered beneficial for researchers and indispensable for acquiring new knowledge and skills, the main issue is not to prevent researchers from moving, but take profit and provide them with adequate return opportunities and career prospects. The main question is to create conditions for brain-gain and brain-circulation in Europe. Thus, changing universities and research organisations, increasing their performance quality and strengthening their links to industry, and thus, fostering knowledge application in practice could essentially raise the attractiveness of ERA. Besides, a number of EU initiatives as pointed out above have focused on removing the barriers for mobility of researchers, raising the attractiveness of the researchers' career in Europe and creating a genuine European labour market for researchers. These initiatives are more or less visible among researchers. The E-CARE project revealed that a lot of work is needed in order the EURAXESS initiative to become more visible and to become a substantial mechanism for the enhancement of the European Human Resources Policy in the ERA in the future. The different scenarios considered in this paper provide some food-for-thought. It depends on decision makers all around Europe how the present network will look like in 15 years time – if it will fully disappear and fulfil the worst-case scenarios or will develop as a 'one-stop-shop' for researchers from public and private sectors, and will facilitate the decision for a research career from an early age.

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References:

- [1.] Gourova, E., Y. Todorova, N. Gourov, 'Skills for future engineers: challenges for universities in Bulgaria', *WSEAS TRANSACTIONS on BUSINESS and ECONOMICS*, Issue 7, Vol. 6, July 2009, pp. 385-399, ISSN: 1109-9526
- [2.] OECD, *The Global Competition for Talent: Mobility of the Highly Skilled*, 2008, <http://www.oecd.org>
- [3.] Gourova, E., *Insight into ICT professional skills and jobs in the Candidate Countries*, Enlargement Futures Report Series 08, IPTS 2003, EUR 20749 EN
- [4.] Torn, K., L.B.Holm-Nielsen, International mobility of researchers and scientists, Research paper No. 2006/83, *UNU-WIDER*, Finland, accessed March 2010 on: www.wider.unu.edu
- [5.] Davenport, S., *Panic and Panacea: Brain Drain and Science and Technology Human Capital Policy*, Wellington, 2004
- [6.] Mahroum, S., *Highly-skilled Globetrotters: The International Migration of Human Capital*, IPTS, Seville, 2000
- [7.] OECD, *International Mobility of the Highly-Skilled*, Paris, 2001
- [8.] European Commission, COM(2001) 331 final, *Communication from the Commission to the Council and the European Parliament: A Mobility Strategy for the European Research Area*
- [9.] European Commission, DG Research, *European Charter for researchers and Code of Conduct for the recruitment of researchers*, EUR21620, 2005
- [10.] European Commission, *FP7 Tomorrow's answers start today*, 2006
- [11.] E*CARE Project, *Deliverable 1.2: Comparative Survey Analysis on researchers' mobility and career obstacles*, January 2009
- [12.] Franhofer ISI, Idea Consult, SPRU, *The Impact of Collaboration on Europe's Scientific and Technological Performance*, Final Report, Karlsruhe, Brussels, Brighton, March, 2009
- [13.] Williams, A.M., V.Balaz, International return mobility, learning and knowledge transfer: A case study of Slovak doctors, *Social Science & Medicine*, 67 (2008), pp.1924-1933
- [14.] European Commission, COM(2008)317 Final, *Better Careers and More Mobility: A European Partnership for Researchers*
- [15.] European Commission, SEC(2008)1911, *Communication from the Commission to the Council and the European Parliament: Better Careers and More Mobility: A European Partnership for Researchers*
- [16.] Herrera, L., M.F.Munoz-Doyague, M.Nieto, Mobility of public researchers, scientific knowledge transfer, and the firm's innovation process, *Journal of Business Research*, 63 (2010), pp. 510-518
- [17.] European Commission, DG Research, *Evidence on the main factors inhibiting mobility and career development of researchers*, Brussels, 2008
- [18.] Gourova, E., A.Antonova, R. Nikolov, 'Building skills for the knowledge society', in *Proc. of Third International scientific Conference 'Computer Science'*, Istanbul, 12-15 October 2006, pp. 107-113
- [19.] Nisheva, M., E. Gourova, A. Antonova, ICT and entrepreneurship skills at FMI, *Proc. of International Conference for Entrepreneurship, Innovation and Regional Development ICEIRD 2009*, Thessaloniki, 24-25 April 2009, pp. 213-220
- [20.] European Commission, COM(2007) 182 final, *Communication from the Commission to the Council, the European Parliament, the European economic and Social Committee and the Committee of the Regions, Improving knowledge transfer between research institutions and industry across Europe: embracing open innovation – Implementing the Lisbon agenda*
- [21.] European Commission, DG Research, *Remuneration of Researchers in the Public and Private sectors*, Brussels, 2007, Service Contract REM01
- [22.] Burt G., K. van der Heijden (2003), First steps: towards purposeful activities in scenario thinking and future studies, *Futures*, Vol. 35, 2003, pp. 1011-1026
- [23.] Conway M. (2004), Scenario Planning: An Innovative Approach to Strategy Development, presented at Better the DEVIL you know: 2004 Australasian Association for Institutional Research (AAIR) Forum, Hobart, Tasmania, Australia, September 2004, Available: <http://www.aair.org.au>
- [24.] Miles J., M. Keenan, J. Kaivo-Oja (2002), *Handbook of Knowledge Society Foresight*, PREST, 2002, Available: <http://foretech.online.bg>
- [25.] Recommendation of the European parliament and of the Council, 2005/761/EC
- [26.] European Commission, *ERA Indicators and Monitoring*, Expert Group Report, Luxemburg 2009, ISBN 978-92-79-13998-7