



EDULEARN2013, Barcelona, July 1-3 2013

«SKILLS BAROMETERS» AS AN INSTRUMENT FOR CURRICULA UPDATING

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Agenda

1. Problem statement
2. Skills anticipation in Russia and foreign countries
3. Skills barometer
4. Main results

Challenges

Labor market



Educational system



1

- Training of personnel **in demand**

2

- Quantitative, but **not qualitative** supply/demand equality on the labor market

3

- Training personnel according to specific profession with **required skills**

Quantitative vs. qualitative forecasting

Quantitative approach



Human Resources and Skills Development Canada

Ressources humaines et Développement des compétences Canada



Quantitative, with qualitative elements



AGE models



MONASH University



Qualitative approach



Nowadays **qualitative** anticipation is crucial!

Skills forecasting in Russia

- First experience
- A large-scale three-year (2011-2013) research project “Forecasting skills demand in high-tech industries”
- Ordered by the Ministry of Education and Science of Russia
- Carried out by Budget monitoring centre of PetrSU.

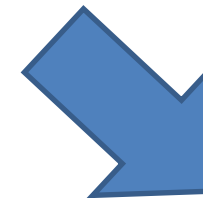
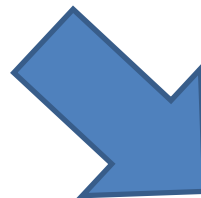
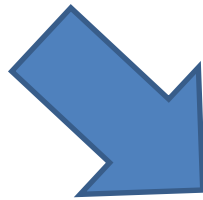


High-tech industries in Russia

- Information and communication technologies (ICT)
- Biotechnologies
- Medicine and health
- New materials and nanotechnology
- Space transportation systems
- Environmental management
- Power-engineering and energy performance

Skills forecasting methodology (for each hi-tech industry)

Preliminary
trend analysis



Personnel evaluation – skills barometer (SB)



SHORTAGE

the competence is **in demand**, but **not developed** enough among the particular group of employees

BALANCE

the competence is **in demand** and **developed** enough among the particular group of employees



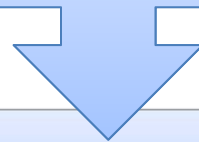
SURPLUS

the competence is **developed** enough among the particular group of employees, but **non-demanded** at the enterprise



SB implementation

Evaluation of skills development level for different employees' groups at enterprises from each of seven high-tech industries



1 step

- In-depth interview (skills scaling and rating) of HR-managers and other executives from enterprises, working groups and research institutions

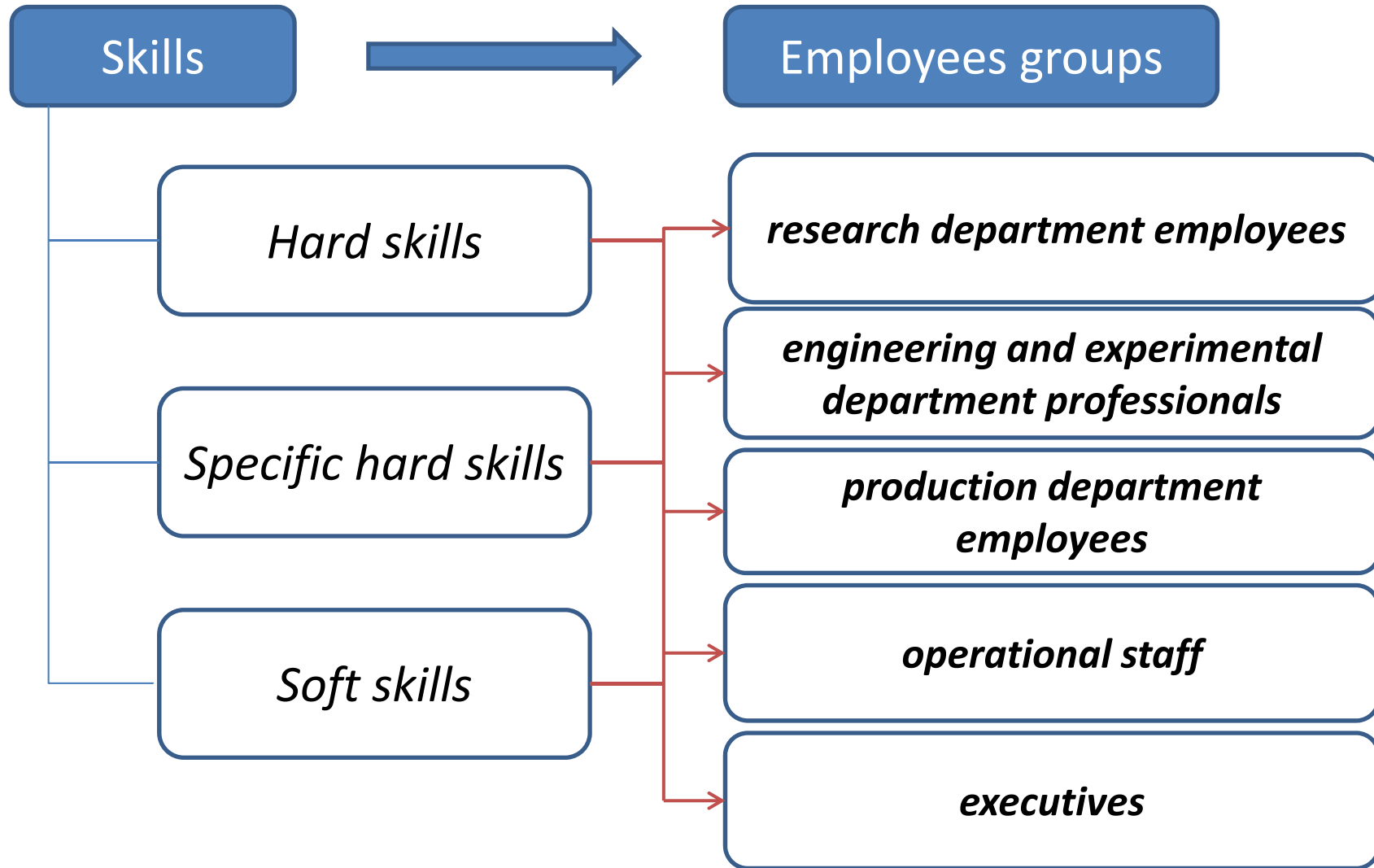
2 step

- Data verification by enlarged list of enterprises (employers) (by means of surveys and questionnaires)

3 step

- Information dissemination































Skills evaluation matrix



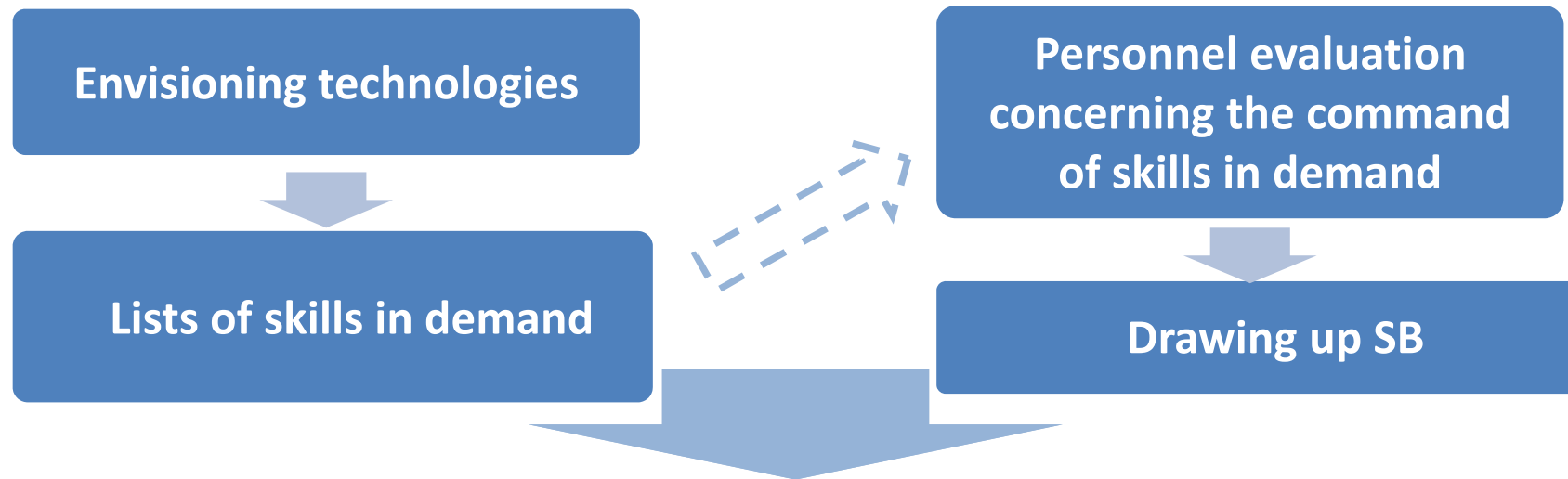
Fragment of a skills barometer: executives

EXECUTIVES	BIO	ICT	MED	NANO	ENVIR	TRANS	ENERGY
Hard skills							
Information technology							
Handling information							
Basic knowledge of the subject area							
Standards							--
Soft skills							
Adaptivity/flexibility							
Self-discipline							
Information search							
Attitude to further education/training							

Fragment of a skills barometer: "medicine and health" industry

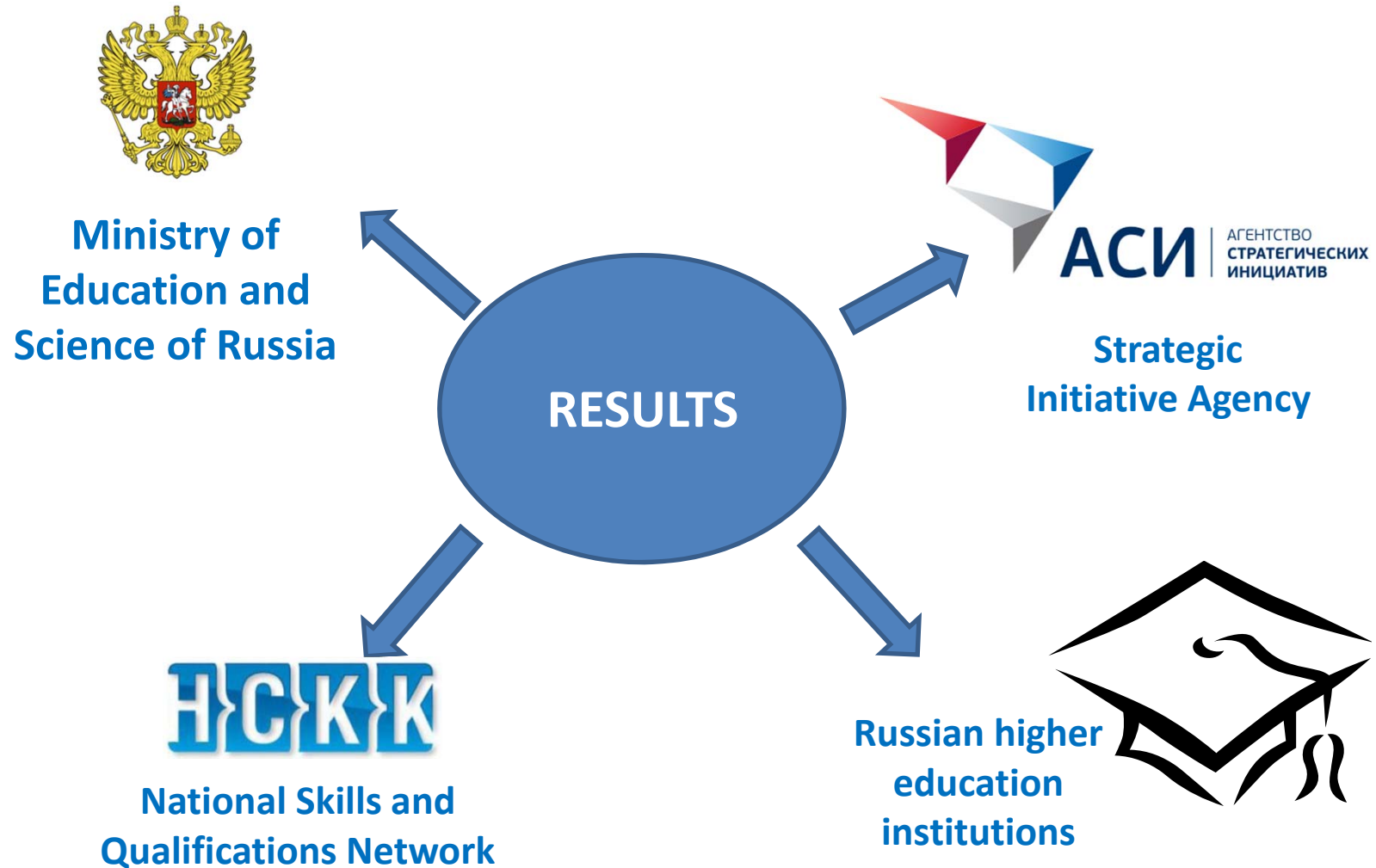
Skills	Executives	Professionals (higher vocational education)	Professionals (secondary vocational education)
Hard skills			
Knowledge of modern fundamental and empirical research methods			
Knowledge of fundamental mathematics, physics, chemistry			
Results anticipation and process models development skills			
Knowledge on how to adhibit crude drugs, pharmaceuticals, biopharmaceuticals and nutritional supplements effectively			
Working knowledge of modern equipment			
Ability to apply statistical and applied mathematics methods and software in order to solve computational diagnostics and forecasting problems			
Soft skills			
Decision making			
Respect/understanding			
Motivating others			
Authority delegation			

Applying SB results - 1

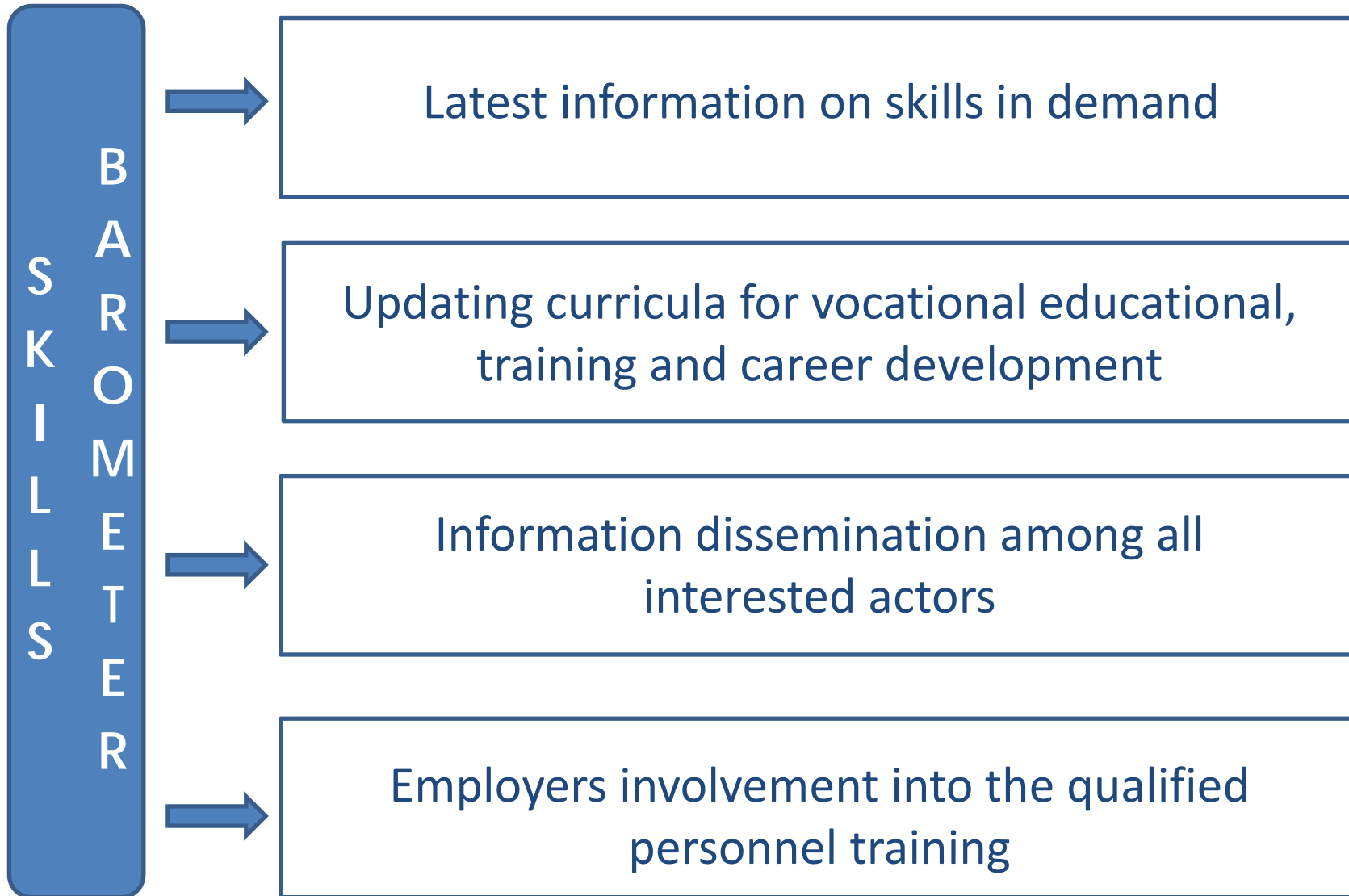


1. Federal state educational standards adjustment
2. Curricula adjustment
3. Training new skills based on existing subjects
4. Introducing new subjects in curricula

Applying SB results - 2



Conclusion



Dissemination of results among scientific community



UNIVERSITY OF HELSINKI
ALEKSANTERI INSTITUTE



CONFERENCES

- «Competition and good society – the eastern model», Helsinki, Finland, October 23-25, 2012
- «Migration and Integration in Europe and Russia: new challenges and opportunities», St.-Petersburg, Russia, November 16–18, 2012
- Workshop «Foreign Labour Migration in Russia», Turku, Finland, October 23, 2012
- Conference on "Policy Transfer in Vocational Skills Development Revisited", Zurich, Switzerland, September 13-14, 2012
- Seminar on Projecting «Tomorrow's Workforce Needs», Washington, USA, October 17 - 21, 2011
- «High intelligent technologies and innovations in national research universities» St.-Petersburg, Russia, February 28 – March 1, 2013
- Etc.



Dissemination of results among scientific community

PUBLICATIONS (in English)

- Sigova S., Pitukhina M. Russian Perspective of the World Development Report: Jobs, Migrants and Human Capital //NORRAG Newsletter No.48 "2012: The Year of Global Reports on TVET, Skills & Jobs – Consensus or Diversity?". - pp.81-83.
- GurtoV V., Kekkonen A., Sigova S. Crucial occupational skills forecasting: the experience of Russia and European countries. Journal of International Scientific Publications: Educational Alternatives – 2012. - Volume 10 – Part 1. – pp.16-23.
- Pitukhina M, Sigova S. Foreign labor migration and human capital development in Russia / Siirtolaisuus Migration. – 2012. – № 2. – pp. 3-8.
- V.GurtoV, M.Pitukhina, S.Sigova. Hi-tech skills anticipation for sustainable development in Russia//American Journal of Social Study. ISSN 2159-5526. - David Publishing Company. – 2013

14 publications in Russian.

We are interested in ...

- International collaboration
- Joint research projects
- Workshops and conferences

Possible projects:

- Erasmus for All 2014-2020
- Horizon 2014-2020
- RHF grants
- Etc.

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THANK YOU FOR ATTENTION!

Looking forward to cooperating!

