ESTONIAN ACADEMY OF YOUNG SCIENTISTS

Summary of the official final report
on mapping research management skills among doctoral candidates in Moldova
*(as abstracted from the main publication ISBN 978-9949-18-921-2)*

The main report (total in 80 pages) presents final results of the survey conducted in the framework of the Estonian-Moldovan development co-operation project „*HANDS-ON SKILLS – Mapping and Developing Research Management Skills among Doctoral Candidates in Moldova*", led by the Estonian Academy of Young Scientists in co-operation with the Moldovan Association of Young Researchers "PRO-Science" (www.enta.ee/moldova). The project was financially supported by the UNESCO Participation Programme 2008-2009 and the Estonian Academy of Sciences.

The aim of the survey was to map demands and expectations of the Moldovan doctoral candidates in two important domains: (1) **intersectoral academic mobility** (cooperation with knowledge-based industries) and (2) **research management** (including transferable skills and competences). The mapping survey was conducted in February 2009, when 14 areas of competences were screened among 240 Moldovan doctoral candidates (approximately 15% of their total population). The following areas of transferable skills and competences were selected: risk analysis and decision making, conflict management, work-life balance and prioritising techniques, strategic thinking and goal setting, cross-cultural skills and international networking, skills for co-operation between industry and academia, time management, international written communication, data management, team work and leadership, lobbying skills, resource management, career development and planning, and research ethics. During the mapping survey, three main vectors were investigated: (1) doctoral candidates' **awareness** of the importance of transferable skills and competences in the abovementioned areas; (2) **accessibility** of the transferable skills and competences for the doctoral candidates in the abovementioned areas; (3) the influence of **real work experience outside academia** on awareness, accessibility and implementation of the transferable skills and competences in the abovementioned areas. Anonymously collected data was coded and analysed using various methods (descriptive statistics and frequencies of percentages, correlations and non-parametric measure of statistical dependence, internal consistency reliability, Likert summative and weighted scores, and personal positioning). Preceded by an introductory overview, the results presented in the report are divided into three categories: general issues, inter-area findings and each of the 14 areas of transferable skills and competences separately. The results, derived from this complex statistical analysis, are also put in comparison with the international references.

The major findings from the survey conclude the following:

1. Moldovan doctoral candidates recognise as **most important** and **less available** the following areas of transferable skills and competences: *conflict management, cross-cultural skills and international networking, skills for co-operation between industry and academia, international written communication, lobbying skills, resource management, career development and planning, and research ethics*;

2. In general, the real work experience outside academia has **an impressive influence on the awareness** of the Moldovan doctoral candidates about the usefulness of transferable skills and competences in all screened areas;
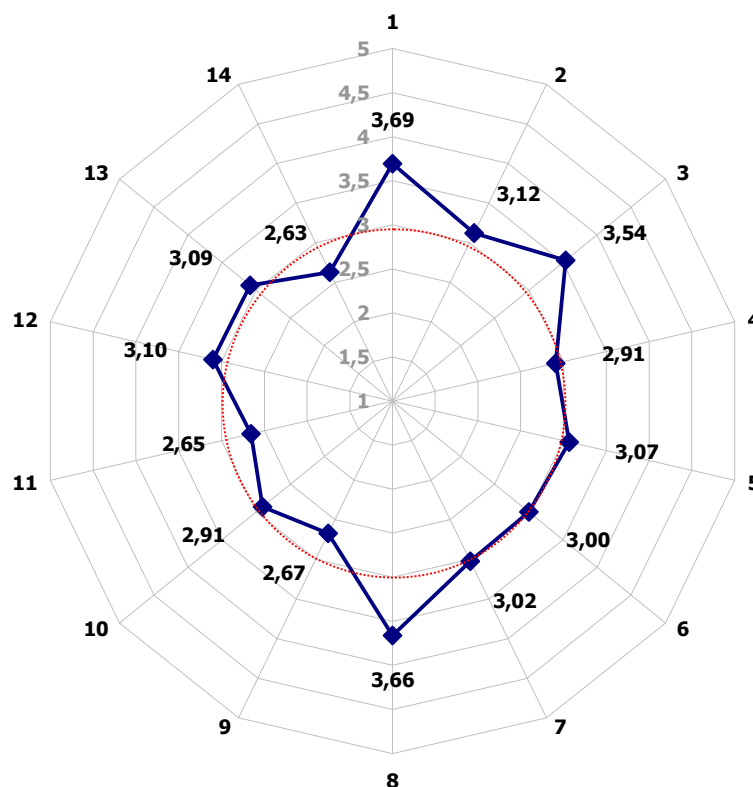

Figure 1. Radar diagram with averaged and weighted values of summative scores illustrating the interpreted <u>importance</u> of competences in the following areas: *1 – conflict management, 2 – strategic thinking and goal setting, 3 – cross-cultural skills and international networking, 4 – skills for co-operation between industry and academia, 5 – work-life balance and prioritising techniques;* and the interpreted <u>accessibility</u> of competences in the following areas: *6 – time management, 7 – data management, 8 – risk analysis and decision making, 9 – resource management, 10 – team work and leadership, 11 – international written communication, 12 – lobbying skills, 13 – career development and planning, 14 – research ethics.*

3. In particular, the real work experience outside academia is seen as a **factor remarkably increasing accessibility and implementation** of transferable skills and competences in the following areas: *risk analysis and decision making, work-life balance and prioritising techniques, strategic thinking and goal setting, skills for co-operation between industry and academia, time management, lobbying skills, resource management, and career development and planning.*
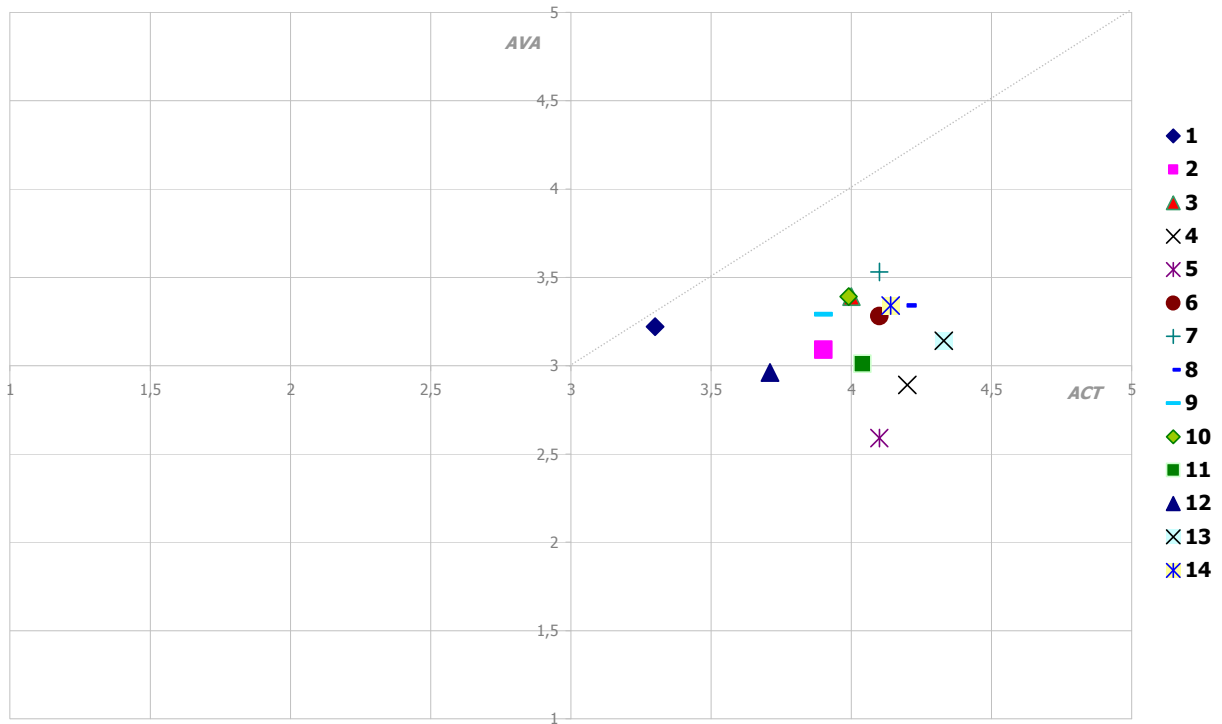
Figure 2. Scatter diagram showing personal positioning of transferable competences according to their importance (*ACT*) and accessibility (*AVA*) in the following areas: *1 – conflict management, 2 – work-life balance and prioritising techniques, 3 – strategic thinking and goal setting, 4 – cross-cultural skills and international networking, 5 – skills for co-operation between industry and academia, 6 – time management, 7 – data management, 8 – risk analysis and decision making, 9 – international written communication, 10 – team work and leadership, 11 – resource management, 12 – lobbying skills, 13 – career development and planning, 14 – research ethics.*
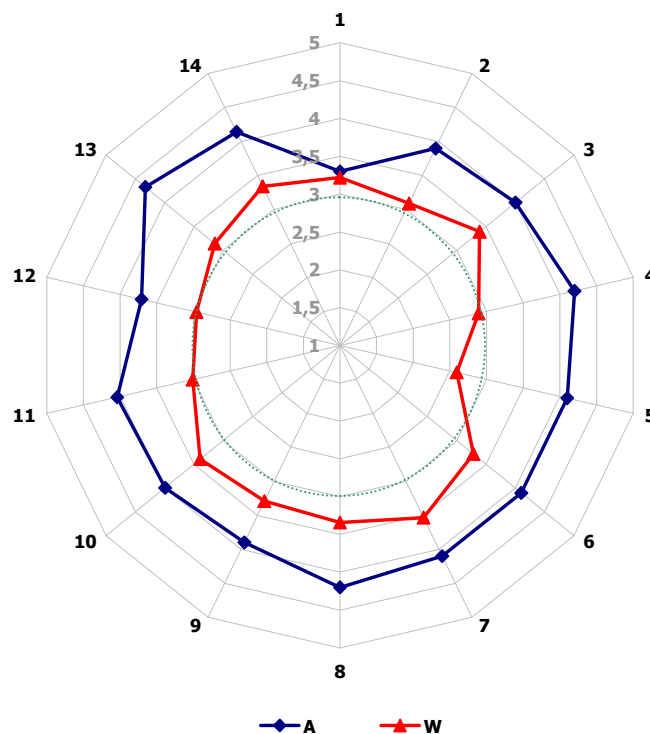
Figure 3. Radar diagram showing personal assessment on importance (A) and accessibility (W) of transferable competences in the following areas: *1 – conflict management, 2 – work-life balance and prioritising techniques, 3 – strategic thinking and goal setting, 4 – cross-cultural skills and international networking, 5 – skills for co-operation between industry and academia, 6 – time management, 7 – data management, 8 – risk analysis and decision making, 9 – international written communication, 10 – team work and leadership, 11 – resource management, 12 – lobbying skills, 13 – career development and planning, 14 – research ethics.*
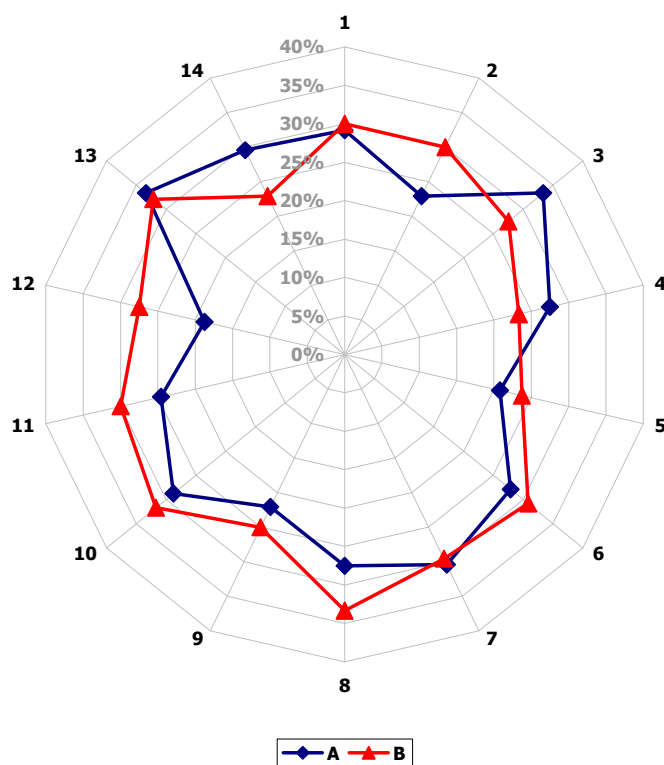
Figure 4. Radar diagram reflecting the percentage of all respondents in two categories: <u>implementation</u> (A) and <u>accessibility</u> (B) of transferable skills during the real work outside academia. The following areas of competences have been screened: *1 – conflict management, 2 – work-life balance and prioritising techniques, 3 – strategic thinking and goal setting, 4 – cross-cultural skills and international networking, 5 – skills for co-operation between industry and academia, 6 – time management, 7 – data management, 8 – risk analysis and decision making, 9 – international written communication, 10 – team work and leadership, 11 – resource management, 12 – lobbying skills, 13 – career development and planning, 14 – research ethics.*

All in all, there is a **good basis** for further steps to improve and integrate doctoral research, career management, intersectoral academic mobility and transferable skills of early-stage researchers and doctoral candidates in Moldova. It is believed that **the most appropriate and efficient way** achieving this would be delegating this challenge to the **interdisciplinary doctoral schools** having comprehensive administrative, academic, networking and financial resources to establish a thoroughgoing local tradition by successful adoption and implementation of the best European practices.

As the national system of doctoral education and career development of early-stage researchers in Moldova should be adjusted to the European values and criteria, these outcomes might be relevant to the Moldovan stakeholders. Already in 2005, the European University Association (EUA) adopted so-called Salzburg principles, where importance of transferable skills and competences in the light of the Bologna process and development of careers of young researchers were especially underlined. Awareness and readiness of young researchers and doctoral candidates themselves to acquire transferable skills and competences is also a leading force in the process. The European Council of Doctoral Candidates and Young Researchers (EURODOC) refers to the emerging full integration of transferable skills and competences into the programmes of doctoral schools. Many specialists of higher education consider doctoral schools as development centres for interdisciplinary research, where transferable skills and competences are indispensable.

Therefore, in order to initiate re-thinking of career outlooks of the Moldovan doctoral candidates, **European tendencies and experiences** in teaching transferable skills and competences have to be embedded into doctoral curricula across major universities and research institutes in Moldova, which would also provide for a **smoother integration** of its higher education system into a European framework. It is believed that, by doing so, each stakeholder in Moldova benefits already in a short-term perspective, at least for the following reasons:

1. Early-stage researchers and doctoral candidates will obtain a set of knowledge and skills making them capable of being more international and better team players, enabling a better use of external resources and internal strengths, thus making them more economically and academically secure;

2. Private sector and industry will be more confident that a doctoral degree holder is indeed capable of leading a research team immediately upon receiving a degree, without additional training, or – which is more costly – re-skilling;

3. Universities, institutes, industries and public sector will receive qualified researchers, who spend less time on non-research related activities because they can manage resources properly;

4. And, closing the circle, increased economic security and professional competence will enhance the attractiveness of doctoral degrees, increasing the number of post-doctoral researchers and contributing to development of knowledge-based economy – a result desired by any government in Europe.

Final recommendations in the main report have to be addressed to the major stakeholders – Academy of Sciences of Moldova, the Ministry of Education and Youth of Moldova, the National Commission for Accreditation and Attestation of Moldova, main universities and various research institutions – responsible for development of Moldovan doctoral programmes from the perspective of research management and intersectoral academic mobility. The main report can be also used as a starting point for a **further dialogue** between Moldovan early-stage researchers and doctoral candidates, universities, R&D institutions, the state and innovative industry in order to advocate and improve **development of researchers' career portfolio** and **build a knowledge-based society in Moldova**.