DRIVE
Developing Research & Innovation Capacities
Albania & Kosovo

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DRIVE DEVELOPING RESEARCH
AND INNOVATION CAPACITIES IN ALBANIA AND KOSOVO

ANALYSIS OF CURRENT NEEDS FOR NEW PRACTICES IN RESEARCH MENTORING (D 2.2)

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Introduction

This **Analysis** is based on the results of the workshops (D2.2) conducted in the first year of the DRIVE project. For the purpose of the institution-specific analysis, the existing mentoring practices for the different study levels (PhD, Master's and Bachelor's) as well as the existing processes and ongoing practices at each partner university were identified and analysed. Each university was also asked to prepare a self-assessment analysis to answer the following questions in connection with research mentoring/supervision practices:

Group 1: Questions related to the current situation and supervision/mentoring practices at the partner universities:

Q1: What are the **current practices and processes** for the supervision of diploma and PhD theses (at individual, faculty and university level)? What mentoring elements are already included in the PhD programmes at the partner university?

Q2: What **resources and capacities** (financial, technical, organisational, didactic, etc. are needed to support the university staff involved in the supervision of students and PhD theses? What **competencies** are necessary to ensure supervision of research students (Master and PhD level)? Which competences the faculty/university staff involved in the supervising process already have (e.g. through former ongoing educational projects, courses, etc. and which are still missing?

Q3: What **barriers and obstacles** may inhibit the processes needed for the efficient supervision of students' and PhD theses? What **actions** have to be undertaken at institutional faculty level to overcome these barriers?

Group 2: Questions related to adaptation of the mentoring practices and processes:

Q4: What mentoring practices **can be adapted** to the partner universities?

Q5: What **resources** are needed to introduce new mentoring practices at the partner universities and to facilitate the knowledge transfer?

Q6: How can the new mentoring practices be adapted to the existing university structures at the partner universities? What **timeframe (long-term, short-term)** can be set for the introduction of the new mentoring practices?

Group 3: Questions related to supervision/mentoring relationships at the partner universities:

Q7: What are the **problems in mentoring/supervison**/affliation relationsship?

Q8: How can these problems be tackled and what **capabilities** are needed?

The self-assessment analysis was supplemented with the requirements, pros and cons analysis and impact evaluation regarding the new practices.

1. Analysis of current practices, gaps and needs of partner universities in the context of research mentoring

POLIS University (U_POLIS)

Three faculties (Faculty of Architecture and Design; Faculty of Urban Planning and Environmental Management and Faculty of Research and Development) were included in the present self-assessment procedure. Among the strengths of the U_POLIS, the double degree PhD programme with the University of Ferrara (Italy), recognised by the Italian Ministry of Education, and Interdepartmental Research Think-Tank (INNOVATION_Factory) are stated. The organization of the double degree PhD study cycle: a series of mandatory seminars for the candidates (in particular, during the first year) and a mandatory international workshop divided in two rounds – the first one in Ferrara, the second one in Albania. The

programme includes a specific tutoring approach, where all candidates have a tutor from the origin institution and a co-tutor from the partner institution.

As potential problems in the **specific mentoring/supervision relationships and interactions** (Q7) for all study programme cycles, the following are identified:

1. Supervision requires extensive work to arrange and align a continuous communication with the students due to distance which sometimes is translated into increased efforts by supervisors;
2. Multidisciplinary PhD requires different expertise, so sometimes the main supervisor cannot guide exclusively all aspects of the PhD;
3. Lack of structured relationship with industry (also for Master thesis);
4. Need to Training staff (also in the PhD program) to develop capacity building in project writing to perform at a greater capacity;
5. Need for updating the library systems and more access to International Indexes;
6. Enrich transversal activities of PhD program in two possible directions;
7. More innovation-based research related to U_POLIS research unit "Innovation Factory (IF)".

Specifically, the following **barriers** (Q3) are identified to overcome:

1. Lack of funding and the possibility to bring actors from the private companies (bureaucracy and some obstacles to cutting-edge or innovative methods, approaches);
2. Current existing gap in interactions between Universities and Companies;
3. Lack of available funds for developing students ideas on a practical side;
4. Lack of opportunities for updating (training) for the staff due to geographical/financial constraints.

With regard to the required **competences and resources** (Q2), the following arrangements are necessary:

1. More chances for the existing staff for capacity building activities such as visits to other institutions;
2. Transfer of technology and entrepreneurship; limited experience on joint industry academy supervision;
3. Moderation of the involvement of the students in professor's projects;
4. Attendance in International projects that as leaders and partners;
5. Possibility to host more international staff related to the currently on-going research (such as Marie Curie grants or ECR);
6. Better support from public entities in fostering research exchanges and connections;
7. Case studies and exchange on adaptation of the mentoring practices and processes;
8. More financial supports for PhD candidates to attend International conferences and events;
9. Creation of an innovation-based research framework;
10. Fill in the currently existing gap between Universities and Companies.

Based on results of the **requirement analysis** (Workshop D 2.2), the following practices (Q4) are defined to foster the supervision and mentoring practices at the university:

Practice 1: Co-supervision of PhD thesis with industry (flexibility of academic staff and supervisors required to align their mentoring approach with the industry requirements);

Practice 2: Transversal activities with students of joint programs (additional staff for the new activities required);

Practice 3: Connect PhD research with Financed research European programs such as Horizon 2020; MSCA (staff needed to write and implement project).

Pros and cons analysis:

Practice 1 (Co-supervision of PhD thesis with industry): Pros: Orientation of PhD thesis on applied research; Improved technology transfer skills; Financial support from industry; Cons: In Albania the stage of economic development makes for limited capacities in industry level; Lack of university-business cooperation mindset and culture;

Practice 2 (Enrich transversal activities with students of joint programs): Pros: We put a lot of focus on research methods while other soft skills are important (communication, language, IPR); Cons: Need for additional staff;

Practice 3 (Connect PhD research with Financed research European programs such as Horizon 2020; MSCA): Pros: Increase the program profile and impact (attracting high quality researchers); Networking with other partners / projects / programs; Cons: Lack of previous experience (highly competitive calls).
Based on the **impact analysis**, Practices 2 and 3 are rated as high effort and high impact; Practice 2 is rated as low effort and low impact. In terms of the timeframe for adopting the new practices, Practice 2 seems to be adopted in a short-term perspective; Practice 1 may be adopted in the university in a long-term perspective.
As **future perspectives** in connection with research mentoring at the U_POLIS, the following are mentioned:

- Internationalization of the research framework;
- Mobility chances to grow in an international research community;
- Specific trainings also from actors outside the University environment;
- Innovation-based framework for their researches;
- Replicate in the MA program the close cooperation with the Industry in research, which is already an implemented model within the PhD framework.

European University of Tirana (UET)

Among the strengths noted at UET are a high level of staff qualifications, some with prominent professional and academic careers, contemporary curricula supported by up-to-date literature, and practical institutional structures that can link theory to practice. Overall, the organisational framework conditions for the implementation of the degree programmes are suitable for fulfilling the tasks in teaching and research at a high level. The UET has established, functioning internal quality assurance structures and a well-defined, properly applied, nationally and internationally integrated strategy for scientific research. The UET is also committed to an environment of equal opportunities and non-discrimination.
Mentoring/supervision methodologies and practices (Q1):
The research conducted by the academic staff is linked and follows the major research areas and individual research axes of the respective lecturer/supervisor. The basis of the mentoring/supervision methodology is a collaborative approach and a three-stage process (expression of research interest and expertise by staff; completion of the template by students; organisation of meetings with students at departmental level and notification of students of their supervisors). Overall, 10 mentodological sessions are held as part of supervision; supervisors meet with students once a week; support at departmental level.
For the PhD programmes, the doctoral office is involved in the cooperation with the department and the faculty; it organises the white defence by evaluating the methodological and content experts.
The gaps and problems in the specific **mentoring/supervision relationships** and interactions (Q7) are as follows:

1. Lack of support in the selection and planning of a meaningful and appropriate research topics;
2. Need to spend more time on face-to-face or online regular meetings for discussion and review of progress;
3. Lack of positive environment for discussion and constructive criticism of ideas, research plans, research results, etc.;
4. A lot of responsibilities on PhD students;
5. Lack of practical skills in Academia;
6. Lack of financial funding.

These **problems can be addressed** by the following arrangements (Q8):

1. More obligatory meeting between Supervisors and PhD Students;
2. Graduate Supervision as a Shared Responsibility;
3. PhD topics Evaluation and Approval should be in accordance with Supervisor key interests;

4. Supervisor should provide support to their graduate students at every stage of research process;
5. Share networks with their PhD Students.

The **competences and resources** (Q2) are particularly required to improve supervision in the PhD programmes:

1. The library system, which is essential for research, needs further improvement and enrichment;
2. On-line library system needs further improvement and enrichment, too;
3. ICT basis & logistics need to be more comprehensive, powerful, upgraded and widely used;
4. Physical infrastructure for disabled students not fully in compliance to the standards required;
5. Lack of practical skills and competences in Academia;
6. Weak networking of Professoriate with their PhDs students (rarely share their professional and academic network with them);
7. Lack of funding and research interest from industries, key stakeholders in the national economy (public or private ones);
8. Need to spend more time on face-to-face or online regular meetings for discussion and review of progress.

Taking the results of the **requirements analysis** (Workshop D 2.2) the following practices are defined to support supervision and mentoring practices at the university:

Practice 1: University agreement, that consist of staff and students exchanges, methodology and good practices (Aston university);

Practice 2: Erasmus + Program and Partnership projects;

Practice 3: Cooperation with Businesses (The university has established partnerships **with 500 business** that my help students to gather data during their research).

Polytechnic University of Tirana (PUT)

PUT departments publish the fields of scientific research including the specific subjects for each field and the respective academic staff in charge; students apply through e-mail for their fields of interest. They also consult the supervisors to negotiate if their individual academic level meets the specific scientific requirements of the published fields. After the evaluation of the applications from the students, the university department approves the division of the fields and subjects between the student candidates (this procedure is the same for doctoral students but the difference is in the quotas available). An individual programme is developed for the doctoral students that outlines the specific tasks for the period of the doctoral studies (3-5 years). Supervision is offered by the academic staff, but can also be offered to Master's students by active PhD students who are already part of the academic working groups. The mentoring elements consist on the support about behavioral and communicational techniques concerning the organization and the steps to follow during the preparation of the thesis and scientific research work.

In terms of supervising **doctoral students**, the university tends to have a good practice. Among others there are: providing theoretical background, research work in team with supervision; collaboration with other universities for knowledge sharing; frequent reviews by supervisor. Two departmental presentations, 3 conference papers, 3 journal papers and the final thesis are planned for the exchange; definition of the ad hoc commission for the evaluation; final presentations to the commission. Few more mentoring elements include encouraging students to discuss their ideas with the mentor or other colleagues, conference and different trainings participation, providing students with the most recent publications through access to some online libraries, collaboration with universities that we already have an agreement, public presentation of the PhD work to all interested audience. However, there is a need for more resources and capabilities to support the supervision of thesis at university. For example, there is a need for agreements at university level for collaboration with other universities or institutions for experts' feedback and support regarding input dataset; for a more modern infrastructure in order to process big data; trainings for mentors and collaboration with industry.

The potential problems in the **mentoring/supervision relationships** (Q7) are defined as follows:

1. The mentor is not open to the student, not willing to share his/her experiences;
2. The leadership style can create gap in relationship with the student;
3. Harsh and very authoritative supervisor creates distance and the students get demotivated friendly approach between supervisor/student encourages student's work;
4. Role conflicts: stubbornness;
5. Lack of dedicated time to the student;
6. Lack of communication skills needed for the mentoring role;
7. Lack of technical skills needed for the mentoring role: vague requirements -> procrastination and demotivation of the student; clear PBL requirements -> encourages the student to solve a problem;
8. Overdependence on the mentoring relationship;
9. Mismatch of expectations: the student may neglect the job -> not satisfied supervisor; the supervisor not clear requirements, not present -> not satisfied student

In summary, the problems associated with the mentor-student relationship stem from leadership style, role conflict, lack of time, lack of communication skills, lack of technical skills, overdependence, mismatch of expectations, and a mentor who is not open to the student.

The following **pathways and capabilities** (Q8) are necessary to address the above problems in mentoring/supervision relationships:

1. Co-supervising;
2. Access to PhD ecosystem, seek advice/counseling from other resources;
3. The roles should be clearly defined by rules;
4. Schedule periodic meetings, dedicated time, frequency and duration of meetings with supervisor and the student;
5. Training the supervisors on soft skills;
6. Qualification of the supervisor on regular basis (workshops/conferences);
7. Assessing the supervisor skills by a quality assurance board;
8. Encouraging students to conduct independent research and to broaden their network;
9. Extending the network where the student can get technical feedback.

Overall, the following **resources** (Q2) are particularly required to improve supervision in the PhD programmes:

1. Financial support for publications and presentations in conferences, congresses etc.;
2. Support for accessing the network of the university to deepen the scientific research;
3. Human support from the academic staff of supervisors for the theoretical background required for the PhD field of study;
4. Facilitation for the doctoral students, part of the academic staff, in the reduction of the teaching hours.

The **competences** (Q2) necessary to ensure supervision of research students:

1. Expertise in the specific field;
2. Expertise in the research methods (we have lack of such expertise because we do not have extra subjects regarding this knowledge);
3. The required experimental bases for advanced research (beyond local impact – in comparison with the developed countries).

The potential **barriers and obstacles** (Q3) for the efficient mentoring/supervision processes are as follows:

1. The academic staff (professor level) are overloaded with teaching hours and do not have a lot of time dedicated to the supervision;

2. The financial budget is an obstacle since for every single activity they have to follow an administrative procedure, which takes time. The budget is approved up to a department level but not for specific scientific needs of each professor;
3. The legal framework, which is constantly changing;
4. Lack of motivation; informal industry, not willing to provide access to their data and challenges or bureaucratic barriers regarding the payment for online papers and libraries access.

In summary, there is a need for more funding for access to libraries and investment in new technologies, for new meetings to ensure collaboration, and for more training for supervision staff to overcome these barriers to implementing new supervision processes.

As regard of the **new practices** to support supervision and mentoring practices (Q4) at the university, based on the **requirements analysis** (Workshop D 2.2) the following practices are defined:

1. New courses in soft skills (courses for soft skills, English skills and ethics - students encounter difficulties in writing papers in academic and technical level, special attention must be given to authentical work);
2. Collaboration with other universities (partnerships with other universities to initiate inter-disciplinary projects and PhD thesis (computer engineering is interconnected to many study fields and it can be related to medicine, economy, psychology, literature and human sciences) ;
3. Collaboration with the industry (to solve real-life problems and challenges, provide resources from companies and extend the PhD ecosystem);
4. Decreasing the workload hours of mentors (the workload of teaching hours should be at its minimum, partially the PhD students are academic staff, so they are busy with teaching hours);
5. Mandatory time to study abroad (exchange the ideas and have a dedicated time to PhD);
6. Development of workshops (periodic workshops to present the work progress in faculty level where academic staff and industry are present).

As result, it was defined that all above practices have great advantages; however, the most important disadvantage is the lack of resources. To implement these practices, more academic staff, teaching support staff, financial resources and equipment would be needed. Finally, it was identified what impact these practices have and what effort is needed, sorting the priority of their implementation in time based on these factors. Practices that have the highest impact, but require less effort are given the highest priority. So first, we would implement decreasing the workload of teaching hours and implementing courses for soft skills, English skills, and ethics. Afterwards, the practices that have high impact but also require more effort such as partnerships with other universities, collaboration with industry or mandatory time to study abroad will be implemented later in time. Furthermore, periodic workshops require quite an effort but have less impact so this practice will be implemented later in time.

The **future perspectives** in connection with research mentoring at the PUT are seen as follows:

- Directions of development for supervision practices: PUT is a public institution. As such, it has to respect the legal framework and approved standards;
- Continuous trainings to transfer knowledge from the best practices gained from the project;
- Increase in the foreseen budget;
- Include more research method subjects in all faculties.

University of Prishtina "Hasan Prishtina" (UP)

The self-assessment report is compiled in three parts according to the training agenda.

Gap analysis in mentoring practices and processes, adaptation of mentoring practices and case studies on mentoring problems: the analysis was focused in mentoring of master and PhD students with special focus on the latter. The following main questions have been addressed:

The **current practices for the mentoring** of Master's and PhD thesis (Q1) at individual, faculty and university level are identified below:

1. The current practices are based on individual work;
2. Mandatory approval from department and faculty council;
3. The ideas for research topic mostly derive from consulting between supervisor and students, with limited number of thesis derived from scientific research projects;
4. Sufficient number of master thesis and limited number of PhD thesis;
5. Thesis duration:

- Master (30 ECTS / 120 ECTS): minimum of 3 months up to 6 months
- PhD (180 ECTS): duration of studies 5 years

The following **practices, procedures, approaches, structures** (Q1) need to be improved in the guidance of Master's and PhD students at the UP:

1. Avoiding bureaucratic procedures;
2. Lack of Industry involvement/invited lecturers from industry and other universities;
3. Applied research for solving real life problems;
4. Organizing an annual scientific conference;
5. Project based learning integrated in curriculum;
6. More transversal soft skills course's for increasing capacity for fund raising;
7. Offering master and PhD courses/programs in English language.

What **resources, capacities** (Q2), etc. are required for the faculty/university staff for mentoring the Master's and PhD students:

1. Human resources (Innovative approaches on supervision);
2. Access to scientific digital libraries;
3. Funds for payment for master and PhD students,
4. Enhancing research labs;
5. Joint master/PhD program with EU universities,
6. Transfer of technology and entrepreneurship;
7. Administrative staff trainings to support postgraduate studies.

The **competences the faculty/university staff** (Q3) involved in the mentoring process as well as needs are identified as follows:

1. Experience on master thesis supervision, limited experience on PhD supervision;
2. Experience in research project implantation (national and international level);
3. Participation in international scientific peer reviewed journals and conferences.

Missing competences:

1. Organizing mentorship workshops for potential master and PhD supervisors;
2. PjBL integrated in curriculum;
3. Deriving credible research products published in peer reviewed journals and conferences;
4. Limited experience on joint industry academy supervision;
5. Limited involvement on international thematic research projects;
6. Limited involvement of students in professor's projects;
7. Limited information on Innovative supervision methods.

Case studies on **adaptation of the mentoring practices** (Q4-Q6) and processes:

With a focus on new mentoring practices that can be adapted at UP to facilitate knowledge transfer, the **requirements analysis** identified the potential mentoring practices that do not yet exist at the institution; the reason for their selection and resources and capabilities required for their implementation:

Practice 1: Interlinked research practices (industry involvement for solving real life problems; using industry infrastructure); Professors, teaching assistants and lab operators, Collaboration with industry companies (PhD students), Research laboratories in faculty and companies, Funding from Government and non-government agencies;

Practice 2: Survey with specific field questions to understand the student's requirements and needs (directly related to the quality assurance of PhD studies); Doctoral studies committee at the faculty, Teaching assistants, Small financial resources, Standard office equipment's and Academic development office (quality assurance);

Practice 3: Research period abroad (min 3 months, gaining international experience, team –work, research labs); Bilateral agreements and MoU, International office for cooperation at the university level, National and international scholarship funding and research projects, Research labs at Sending/receiving institution;

Practice 4: Co-mentoring and collaboration with international universities (exchange of best practices).

Pros & cons analysis for each proposed practice

Practice 1 (Interlinked research practices): Pros: Solving real life problems, Industry involvement and Using industry infrastructure. Cons: Lack of interest from industry and Lack of R&D in companies' form industry sector;

Practice 2 (Survey with specific field questions): Pros: Mentoring practices well-tailored to individual need of students and directly related to the quality assurance of PhD studies. Cons: Lack of resources;

Practice 3 (Research period abroad): Pros: gaining international experience, team –work and usage of research labs; Cons: Limited funding,

Practice 4 (Co-mentoring and collaboration with international universities): Pros: Exchange of best practices and Filing the professional gaps; Cons: Difficulty in contacting and making agreements with potential parties; Bilateral agreements and MoU, Teaching and administrative staff, Revise of existing regulation for PhD co-mentorship financial support and Ongoing and future scientific projects.

Based on the impact analysis for the selected mentoring process, the following impact and effort levels as well as the timeframe for implementing each of the practices were identified:

- Low-effort/high impact – Practice 4 – to be implemented first;
- Low-effort/low impact – Practice 2 – to be implemented in the medium or long term;
- High-effort/high impact – Practice 1 and 3 - to be implemented in the medium or long term;

Case studies on mentoring problems and processes:

The potential **problems in the mentoring/supervision relationships** and interactions (Q7) as well as the **pathways** to tackling them (Q8) are defined below:

1. No dedicated funding for participation of students in scientific conferences: Increase in the number of scientific projects at faculty level, dedicated budget line for conference participations;
2. No mentoring guidelines: Preparation of mentoring guidelines for PhD supervisors (including recommendation derived from this workshop);
3. No workshops for supervisors (among others training for supervisors in people management): PhD supervisors workshop organized at university level; Offering workshops for innovative approaches on supervision base;
4. Gaps in doctoral studies regulation/study program: Revision of doctoral studies regulation; Integration of Problem Based Learning (PBL) and Project Oriented Based Learning (POBL);
5. Prolonged duration of studies (students full-time employed in industry/companies) and Lack of Industry involvement (Applied research for solving real life problems): Agreements between faculty and industry/ companies; Transfer of technology and entrepreneurship;
6. Limited number of scholarships (Funds for payment for PhD students and research abroad) and Limited Number Co-mentoring and collaboration with international universities; Possible Joint PhD program with EU universities;
7. Over-dependence on supervisor (Lack of creativity and critical thinking) and Limited Number Co-mentoring and collaboration with international universities: Organizing an annual scientific conference; Project based learning integrated in curriculum; Promote teamwork in research labs;
8. Limited access to scientific digital libraries: Expending access to scientific digital libraries (through ministry of education, university founds, project founds, donators, etc.).

University of Gjakova "Fehmi Agani" (UGJFA)

The self-assessment analysis of current practices and processes in thesis supervision focused on the mechanisms that the UGJFA has in place in the supervision and how these mechanisms are used in carrying out the supervision process.

Practices, methods and approaches (Q1): Begins with the procedure of identifying the topic and potential mentor in the final year of study; as a condition for starting the procedure is that the student has minus two exams from the last year of studies; students can propose topics in consultation with the professor, which topics must be submitted to the Faculty Council for approval; the completion of the thesis should be no more than 6 months from the date of formality of the thesis.

The types of studies within the themes can be:

- scientific research;
- literature reviews;
- case studies.

It depends on the study field they are doing the research:

- Cases in hospital clinics;
- Cases in schools – (primary and preschool education institutions) etc.

Gaps to be identified, which are considered as a lack in UGJFA, are as following:

- Small number of academic staff;
- Small number of publications;
- Supervisor has to be from specific field in accordance with the chosen topic by students.

Determining **barriers** (Q3):

- it is not yet practiced that students' thesis become involved in our research project,
- all research projects within our university to include students,
- the idea is that at the time of graduation these students choose from a segment of the project and defend it as a thesis topic,
- the lack of staff and student's collaboration in research articles and published papers,
- research of a scientific nature done by students unfortunately is not yet published by academic staff or students,
- topics remain only online on the website of the university academic units.

Future perspective in the near future is seen in Joint Incorporation of work between academic staff, students, industry, entrepreneurship and higher education institutions in Kosovo.

The **strengths** of the UGJFA are mentioned below:

- We define properly the candidates and supervisors;
- Based on the limited number of candidates, then study field should be in accordance with program planned;
- In the very beginning, candidates are more familiarized with supervisor and research field topic.

The **weaknesses** are identified as follows:

- In the programs that our university offers there is the huge competition among other universities;
- During the process they may have suggestion for changing;
- They have limited opportunities of study field.

Potential **problems in mentoring/supervision relationships** (Q7) are identified as follows:

1. The short number of mentoring staff, it's overloaded because of a high number of students;
2. The lack of financial support to students from university;
3. There is not a strong cooperation between industry and university (it means there is lack of understanding between entrepreneurship and university);
4. All high education institutions in Kosovo face the same problem.

The following **pathways and capabilities** (Q8) are necessary to address the above problems in mentoring/supervision relationships.

1. There should be a promotional campaign with all enterprises before starting new academic year;
2. To convey the message that the conducted research is of particular importance not only to the student but also to community in general;
3. The presence of students in these enterprises to be mandatory for at least 3 months, thus it should be as the criterion in meeting the graduation requirements;
4. Their attendance/participation in entrepreneurship will be calculated in completing ECTS. It would be motivation for students; groups had to determine how to present output of the collective agreement;
5. Mentor provides intentional guidance, motivation, and encouragement, works closely with candidate in individual basis.

The academic staff in the UGJFA has come to the realization that educating the next generation of graduates will require more than simply lecturing to them in classrooms and depositing them into laboratories within the list of what things to do. The mentor should work as closely as possible with the candidate in order to motivate him / her in his / her work, and convince him / her that such a study is of interest to the future reader.

6. Frequency of meetings: Having frequent meetings while working on the topic, the candidate becomes more aware of her/his responsibilities and develops professionally, which affects the work habit and gains more self-confidence;
7. Meeting specifics: During special meetings, where the candidate needs detailed information on the topic or the work process of the topic, the candidate is reinforced in discussions challenges or skills with particular people of the same study field;
8. Research organizations/ institutions etc. Our students' research is usually done in institutions where students do internships, in institutions with which the university has agreements, but also with other institutions if the field of study suits the activities of these companies;
9. Topic selections: Students define their topics for study based on several factors. They are led by mentors who are researchers in the specific field in which the candidate is interested in doing research. The candidate chooses a topic if the study arouses their curiosity for research. But, even in other cases, when a student is not definitively defined, then she/he seeks for the professor's support to take a guidance, if the professor is aware on her/his skills during the studies.

As regard of the **new practices** to support supervision and mentoring practices at the university, based on the **requirements analysis** the following practices are defined:

Practice 1: Identifying candidates and mentors/supervisors in certain research field;

Practice 2: Candidates can propose and choose topics interested in accordance with a mentor.

Pros and cons analysis:

Practice 1: Pros: We define properly the candidates and supervisors based on the limited number of candidates, then study field should be in accordance with program planned; Cons: In the programs that our university offers there is the huge competition among other universities;

Practice 2: Pros: In the very beginning, candidates are more familiarized with supervisor and research field topic, Cons: During the process, they may have suggestion for changing; they have limited opportunities of study field.

Joint incorporation of work between academic staff, students, industry, entrepreneurship and higher education institutions in Kosovo is mentioned as a **future perspective** related to research mentoring.

Universum College (UC)

The **strengths** of Bachelor and Master programmes (Q1) are mentioned below:

1. Updated curricula and contemporary Master programs responding to the need of industry and ever-changing economy and society of Kosovo and beyond;
2. Qualified and full time academic staff with hands-on experience in industry;

3. Qualified staff with extensive academic career;
4. Large cadre of supporting administrative/ assistant staff offering consistent help for students in their research, practicum work;
5. Active international bilateral cooperation for research, internship and exchange offering international experience to students;
6. Dual studies MA program with Kajaani University in Finland and Ludwigshafen University in Germany;
7. Mandatory working hours for students in attaining the practice and research outcomes as well as ECTS credits based on program curricula;
8. Joint research opportunities between Academic Staff and Students pursuing the MA program;
9. Clear policies and rules including manual for research structure and publication;
10. Quality assurance and advisor- decentralized supervision reporting to the quality office;
11. Research and student centred policies encouraging real work practice;
12. Non-discriminatory and inclusive polices for students of different backgrounds;
13. International visiting scholars, who provide modular lectures and coach and mentor students conducting research;
14. A rich accessible physical and online library for students and staff;
15. High tech equipment including hardware and software utilized by academic and administrative staff in keeping track of mentoring. Software and hardware utilized facilitating study, research and practical work of students.

The following are mentioned as **weaknesses** of the Bachelor and Master degree programmes:

1. Lack of sufficient industry interest in joining the academia and industry partnership;
2. Small economy of Kosovo, preventing students and staff in further expanding their studies;
3. Lack of literature in Albanian Language, preventing non-English speakers in accessing more information;
4. Inability to provide sufficient financial incentive to support international research of students;
5. Complicated requirements from accreditation agency in constantly updating the curricula, the need to strictly conform accreditation agency rules and regulations which hinders and complicates the curricula update procedures;
6. The need to increase the number of full time academic staff, not enough qualified academic staff in Kosovo to join UC full time;
7. The need to increase international bilateral agreement to offer more dual degree programs for our BA and MA students;
8. The need to expand and establish more Master and BA programs to our institution;
9. Inefficient online mentoring practices that do not work quite well in pandemic time;
10. Individual mentoring of students is time consuming with limited full time academic staff;
11. The need to increase industry networking and engage industry coach and mentors into the research and student work.

The **gaps in supervision practices** (Q1) are identified in the gap analysis and presented below:

1. Increasing number of students – Hard to supervise;
2. Switch to online mediums and hard to supervise without physical presence;
3. Time management- Academic staff is overloaded with supervision;
4. Inability to offer financial incentives for supervising- Lack of specific budget;
5. Student supervising needs are different- no one template fits all;
6. Individual supervision needs – Not enough time and resources to focus and develop a student individually.

The **competences** (Q2) required to improve the supervision practices and processes are as follows:

1. PhD level studies (the PhD programmes at UC are not held);
2. Field expertise of the supervisor;
3. Great communication and feedback abilities;
4. Willingness to assist and guide students;

5. Ability to manage time and commit dedication;
6. Necessity for capacity building and expanding.

The **potential barriers** (Q3) and obstacles to promoting supervision practice are identified as follows:

1. Time and financial constrains;
2. Increasing number of students;
3. New fields of studies, new researches;
4. Inability to offer all the specific expertise.

As regard of the **new practices** (Q4) to support supervision and mentoring practices at the UC, based on the requirements analysis the following practices are defined:

Practice 1: SMART (Strategic, Measurable, Attainable, Real, Timely) Mentoring: Protocol based, Easy to administer and follow, Well organized, Clear and less room for mistakes or misunderstandings; Suitable for hard sciences and etc.

Practice 2: GROUP Mentoring: Less formal, More space for creativity, Learning by doing and possibility for dissection and cooperation; Suitable for social sciences and humanities and etc.

Pros and Cons analysis:

Practice 1 (SMART Mentoring): Pros: Easy, plausible, organized, strict and less room for mistakes. Professors like it. Its manageable and based on written strict manuals; Cons: Strict limiting and more processes to follow;

Practice 2 (GROUP Mentoring): Pros: Creative and open for new challenges. More contemporary, more brainstorming and new ideas; Cons: Vague and less organized. More attention and professors need more time to focus on each students.

As **future perspectives** in the context of the supervision practices at the UT are mentioned below:

1. Increase the number of full time academic staff;
2. Increase the budget allocations for supervision incentives;
3. Make bureaucratic practices more efficient;
4. Switch thesis into project and practical applicable work- Computer Science department;
5. Increase MA level programs – Joint EU double degree programs.

Summary

The present analysis demonstrates country- and institution-specific needs for improvement in research supervision/mentoring practices, procedures and processes at the partner universities. It is also shown that the partner universities (three HEIs from Albania and three HEIs from Kosovo) face similar deficiencies and problems in the supervision of students and PhD theses; likewise, similar barriers and obstacles stand in the way or improving practice. All these problems can be grouped as follows: (i) **interpersonal** problems and deficiencies in relationships between supervisors and mentors; (ii) difficulties in **selecting thesis topics** and involving students and staff in research projects, especially international projects; (iii) difficulties in **involving industry stakeholders** in university-industry relationships and research activities, as well as in co-supervision of students and PhD theses.

Other significant problems that may arise are: (i) supervisors being **overloaded with other duties**, in particular teaching hours (U_POLIS, UET, PUT, UGJFA and UC); (ii) increasing **number of study programmes** due to high competition among HEIs with a simultaneous lack of growth in academic staff (UGJFA and UC); (iii) necessity to upgrade **research infrastructure**, such as library systems and services, and the building of an appropriate research ecosystem (all partner HEIs); (iv) necessity to increase the number of **presence in scientific conferences** and publications as well as to foster funding schemes for this purpose (all partner HEIs); (v) necessity to improving supporting instruments and funding schemes for networking and academic exchange (all partner HEIs).

When referring to the competences required for effective and high quality supervision, the following points are mentioned: (i) transfer and **soft skills** such as supervision style, leadership, communication, feedback skills (all partner HEIs), with specific mentoring and supervision workshops be offered; (ii) **specific expertise** (research field competence) and **multidisciplinary skills** (all partner HEIs); (iii) **research competence**, particularly sufficient to be involved in the international research projects (U_POLIS); **research methodology** competence (PUT); **technology transfer** and entrepreneurial skills and competences for collaboration and co-supervision with industry (U_POLIS, UP, UGJFA).

Barriers and obstacles to effective mentoring are often mentioned as: (i) lack of industry involvement in university research (all partner HEIs); (ii) lack of funding for staff training (all partner HEIs); lack of funding for academic exchange and networking, including participation in international scientific conferences (all partner HEIs); (iv) bureaucratic procedures and administrative processes for budget approval, curriculum update, etc. (PUT, UC). Problems frequently mentioned **in supervision/mentoring relationships**, are: (i) low networking of students with their professors (UET, UGJFA) and low involvement of students in research projects and topics of professors (all partner HEIs); over-dependence on the mentoring relationship (PUT, UP); some difficulties in supervision in the online environment due to the pandemic situation (UC).

The **practices selected** by the partner HEIs for enhancing supervision/mentoring arrangements and processes can be grouped as follows: (i) the stronger involvement of industry stakeholders in university relationships and in co-supervision activities (U_POLIS, UET, PUT, UP); interlinking research activities and practices, such as linking PhD theses with research projects, e.g. Horizon programme (U_POLIS, UP); increasing opportunities for staff and students exchanges, such as mandatory time to study abroad (PUT, UP, UET); collaboration and partnerships with other universities to initiate inter-disciplinary projects and PhD thesis (UET, PUT); transversal activities, workshops and new courses on soft skills (U_POLIS, PUT). Among the practices that are in place for all partner HEIs, there are a number of institution-specific arrangements, such as: the reduction of workload hours of mentors (PUT); different mentoring procedures such as SMART and GROUP mentoring (UC). The results of the analysis are shown in the Table A below and serve as a background framework for the development of the Guideline on Research Mentoring (D 2.3).

Table A: Results of the analysis of current practices, gaps and needs of partner HEIs in the context of research mentoring

University, Country	**Supervision practices and processes**			**Mentoring/supervision relationship**	
	Required resources, capacities	Competences needed	Barriers and obstacles	Problems in mentoring/ supervision	Capabilities and pathways to tackle the problems
U_POLIS, Albania	▪ Updating library systems; ▪ Networking activities and academic exchange; ▪ Support of public entities in fostering research exchanges	▪ Research project writing skills and abilities; ▪ Technology transfer and entrepreneurial skills; ▪ Multidisciplinary skills; ▪ Skills for co-supervision with industry	▪ Lack of structured relationships with industry; ▪ Low involvement in the research projects; ▪ Lack of funding and opportunities for staff training; ▪ Lack of financial support for participation in international conferences	▪ Extensive workload for supervision, ▪ Multidisciplinary and diverse expertise for PhD supervision needed.	▪ Promotion of innovation-based research; ▪ Strengthening mobility opportunities; ▪ Strengthening close cooperation with industry on Master's programmes (similar to the PhD programme).

U_POLIS mentoring and supervision practices to be adapted/implemented: **Practice 1:** Co-supervision of PhD thesis with industry; **Practice 2:** Transversal activities with students of joint programs; **Practice 3:** Connect PhD research with Financed research European programs such as Horizon 2020; MSCA					
UET, Albania	▪ Support in the selection of research topics; ▪ Improving the university's innovation environment; ▪ Improving the library system and digital library service; ▪ Improving the physical infrastructure for disabled students	▪ Practical skills and competences for academic staff	▪ Lack of financial resources; ▪ Lack of research interest from industry; ▪ Weak networking (professional and academic) between PhD students and professors	▪ Overload of academic staff and PhD students; ▪ Lack of practical skills of academic staff	▪ Shared networks between students and professors; ▪ Improving networking activities with existing business actors
UET mentoring and supervision practices to be adapted/implemented: **Practice 1:** University agreement for staff and students exchanges; **Practice 2:** Erasmus + Program and Partnership projects; **Practice 3:** Cooperation with Businesses					
PUT, Albania	▪ Financial support for publications and participation in international conferences; ▪ Support for access to the university network; ▪ Improvement of the experimental base for advanced research	▪ Expertise in the respective field; ▪ Expertise in research methods; ▪ Regular qualification of the supervisor (workshops/conferences); ▪ Assessment of the supervisor's skills by a quality assurance board	▪ Overloading university staff with teaching hours; ▪ Lack of motivation to participate in university research and provide industry data; ▪ Bureaucratic procedures and administrative processes for budget approval; ▪ Legal framework conditions that are constantly changing	▪ Lack of some specific skills such as leadership, communication skills, technical skills for supervision; ▪ Some weaknesses in supervision style and openness of supervisors; ▪ Over-dependence on the mentoring relationship; ▪ Rules should be clearly defined	▪ Co-supervision; ▪ Facilitating access to the PhD ecosystem; ▪ Time management; ▪ Expanding networking, securing technical feedback for students; ▪ Facilitating PhD students to reduce their teaching hours; ▪ Encouraging students to conduct independent research
PUT mentoring and supervision practices to be adapted/implemented: **Practice 1:** New courses in soft skills; **Practice 2:** Collaboration and partnerships with other universities to initiate inter-disciplinary projects and PhD thesis; **Practice 3:** Collaboration with the industry; **Practice 4:** Decreasing the workload hours of mentors; **Practice 5:** Mandatory time to study abroad; **Practice 6:** Development of specific periodic workshops					
UP, Kosovo	▪ Limited access to scientific digital libraries; ▪ Improvement of research laboratories; ▪ Joint Master/PhD programme with EU universities,	▪ Transversal and soft skills; ▪ Limited experience in supervising PhD students; ▪ Limited experience in conducting research projects;	▪ Lack of industry participation; ▪ Limited experience in joint supervision of industry and academia; ▪ Limited participation in international	▪ Over-dependence on supervisor; Lack of creativity and critical thinking; ▪ Limited number of co-mentoring and collaboration	▪ PBL (Project based learning) and POBL (Project Oriented Based Learning) integrated in curriculum; ▪ Offering Master's and PhD courses/programmes in English;

	▪ Technology transfer and entrepreneurship	▪ Participation in international peer-reviewed scientific journals and conferences; ▪ Mentoring workshops; ▪ Limited information on innovative supervision methods; ▪ No supervision guidelines (e.g. for PhD); ▪ Gaps in the PhD Regulations/Study Programme (PBL and POBL needed to be integrated)	thematic research projects; Limited student participation in professor's projects; ▪ No funding for student participation in scientific conferences; ▪ Limited number of scholarships	with international universities; ▪ Limited number of PhD theses resulting from scientific research projects; ▪ Limited number of PhD theses	▪ Co-mentoring and collaboration with international universities; ▪ Organising an annual scientific conference
UP mentoring and supervision practices to be adapted/implemented: **Practice 1:** Interlinked research practices; **Practice 2:** Survey with specific field questions to understand the student's requirements and needs; **Practice 3:** Research period abroad; **Practice 4:** Co-mentoring and collaboration with international universities					
UGJFA, Kosovo	*Similar to other HEIs in Kosovo*	▪ Limited opportunities in the field of study; ▪ Limited options for the supervisor (should be from a specific field that matches the student's chosen topic)	▪ Lack of financial support for students; ▪ No strong collaboration between industry and university	▪ Low number of academic staff; ▪ Overload of supervisors due to a high number of students; ▪ No involvement of students' theses in research projects; ▪ Lack of collaboration between staff and students on research articles and published papers; ▪ Low number of publications	▪ Promotional campaign with companies before the start of the new academic year; ▪ Close collaboration with students on an individual basis (frequency and specifics of meetings, choice of topics). ▪ Attendance/participation in Entrepreneurship will be counted towards ECTS completion
UGJFA mentoring and supervision practices to be adapted/implemented: **Practice 1:** Identifying candidates and mentors/supervisors in certain research field; **Practice 2:** Candidates can propose and choose topics interested in accordance with a mentor					
UC, Kosovo	▪ Increasing the number of full-time academic staff, low number of qualified academic staff in Kosovo to be involved in UC full time; ▪ Increasing international	▪ Inefficient online mentoring practices that do not work so well in pandemic times; ▪ Introduction of PhD level programmes (PhD programmes at UC are not held);	▪ Lack of literature in Albanian language; ▪ Inability to provide sufficient financial incentives to support students' international research;	▪ Individual student support is time-consuming with limited full-time academic staff; ▪ Increasing number of students and difficulty to supervise; ▪ Shift to online	▪ Increasing the number of full-time academic staff; ▪ Increasing budget allocations for supervision incentives; ▪ Making bureaucratic procedures more efficient; ▪ Change thesis work to project and

	bilateral agreements to offer more dual degree programmes	▪ Supervisor expertise; ▪ Increasing communication and feedback skills; ▪ Increasing willingness to support and guide students	▪ Complicated accreditation agency requirements on updating curricula; ▪ Low networking with industry and low commitment of industry to co-supervision: ▪ Time and financial constraints; ▪ Increasing number of students; ▪ New fields of study, new research; ▪ Inability to offer all the specific expertise	media and difficulty to supervise without physical presence; ▪ Time management; ▪ Lack of a specific budget and inability to provide financial incentives for supervision; ▪ Individual care needs - Not enough time and resources to provide individual supervision and support to an individual student	practical applicable work. ▪ Increase MA level programmes - Joint EU double degree programmes
UC mentoring and supervision practices to be adapted/implemented: **Practice 1:** SMART mentoring; **Practice 2:** GROUP Mentoring					