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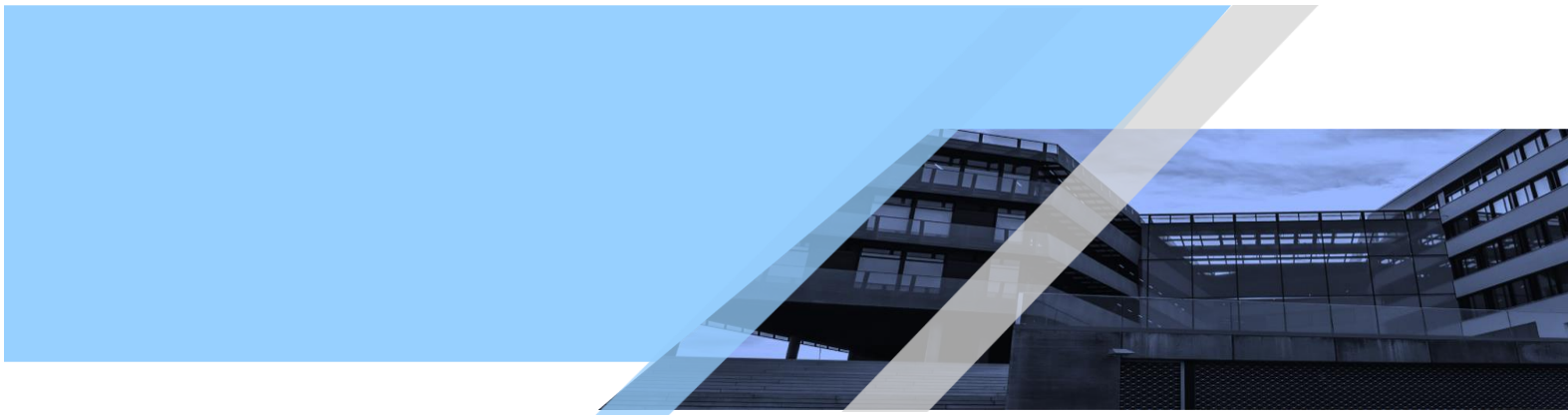
**Students' Mobility Capacity Building in Higher Education in Ukraine and Serbia / MILETUS**



# MILETUS: Guidelines for the virtual/blended mobility programmes

## (Final project report)

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# 1. Introduction

## 1.1 Definition of the virtual/blended mobility

The internationalisation of higher education in recent years has significantly changed its character with the emergence of digital technologies and the transition to the idea of the virtual community. While the term internationalization has so far been practically identified with the physical mobility of students and academics, nowadays modern internationalisation concepts such as virtual mobility, virtual exchange, online networked and collaborative learning are coming to the fore.

The concept of virtual mobility enables students and academics to gain international experience, promote intercultural competences and improve their foreign language skills, regardless of their residential, personal or financial situation, without having to travel abroad. Although various definitions of virtual mobility can be found in the literature, we intend to use the term defined in the Erasmus+ Programme Guide, with the following interpretation of virtual mobility:

> *Virtual mobility stands for the set of ICT supported activities, organized at institutional level, that realise or facilitate international, collaborative experiences in a context of teaching and/or learning"* [Erasmus+ Programme Guide].

In other definitions, virtual mobility is *„a cross-border ICT-enabled learning that allows students to access and follow courses outside their own institution"* [ECTS Users' Guide, http://ec.europa.eu], while *"through Virtual Mobility a university can also offer international experience for students and staff through an international discussion group, an international seminar or an international learning community with regard to a theme of a course or a cluster of courses"* [Ruiz-Corbella et.al. 2014].

Summarizing the basic idea of virtual mobility, the main benefit of virtual mobility for students and university staff is *"the opportunity to work in an international environment, even if they were unable to take part in physical mobility programmes, in line with the concept of the internationalised curriculum"* [Beelen & Jones, 2015].

The increasing number of the projects and best practices such as *OpenVM, MoreVM, Link Class, UNED Virtual Mobility Campus.Net Program, ONL* and other projects associated with virtual mobility demonstrate the opportunities and application possibilities of this concept. Sometimes it is not possible to distinguish between the different forms of virtual concepts of internationalisation, especially if virtual mobility takes the form of the virtual exchange or networking learning, depending on the proposed collaborative format. However, the virtual concepts based only on MOOCs such as Coursera, Udacity and other open courses, which have increased in recent years, cannot be a suitable valid instrument of virtual mobility, which focuses primarily on collaboration and common working in an international environment.

The different forms of deployment of virtual mobility (fully virtual form or blended form, partially combining physical and virtual phases of mobility) depends on the mobility objectives and expected benefits. In this way, the blended mobility, which capture the benefits of physical and virtual mobility, can be a good option if immersion in another cultural or linguistic environment is desirable. In other cases, when the format of mobility is focused on collaborative learning activities in small and large groups through the technically sophisticated learning environment/virtual classroom, students can benefit from virtual mobility [EADTU, 2019]. At that time, the partially virtual mobility can be well introduced in the mobility windows, characterized by features such as the recognition of the study period spent abroad and the embedding in the curriculum [Fekete, 2018].

In this report we present the methodological framework and the lessons learned from the implementation of virtual and blended mobility models at partner higher education institutions in Ukraine and Serbia as part of the Erasmus+ MILETUS project on capacity building in higher education. The aim of the MILETUS project was above all to improve the employment opportunities of graduates in internationally active companies through the acquisition of new experiences and competences and to enhance the quality of PhD students' research through international collaboration and working in an international environment.

This document describes the way in which the virtual and blended mobility runs were developed and contains information on their implementation. It focuses on the details of the proposed mobility programme, its processes and procedures as well as the required documentation and evaluation of students' learning performance. The Erasmus+ funding programme supports students and staff of the partner universities involved in the introduction and implementation of the MILETUS virtual and blended mobility programme.

### 1.1.1 Target group

The target group for virtual mobility is predominantly students who cannot participate in physical mobility programmes. Otto [Otto, 2018] introduced the term "non-traditional students" i.e. students who have limited opportunities for longer periods of physical mobility.

We intend to consider the target group of virtual mobility as students who cannot participate in physical mobility due to their residential, personal or financial situation. The target group is very diverse, it can be students with less-advantaged social backgrounds, but also students who need to be excluded from physical mobility due to their time constraints: working students, female students with small children, and etc.

The proposed format of virtual mobility can also provide different opportunities for students with special needs; in this way, virtual mobility creates equal opportunities for such students enabling them to work in virtual classes in the appropriate learning environment. Despite the fact that under the MILETUS project we had no chance to attract more students with special needs to participate in the virtual mobility runs in view of the low number of such students at the partner universities, this category of students can definitely benefit from virtual mobility by providing special educational support addressing the specific educational and rehabilitation needs of such students.

The next important categories of students for virtual mobility (see Figure 1) are students originating from internally displaced families and other students with residential, legislative and financial restrictions. Due to the instability and vulnerability of the personal situation of such category of students, virtual mobility can offer more opportunities for the integration of such students at both individual and community level.

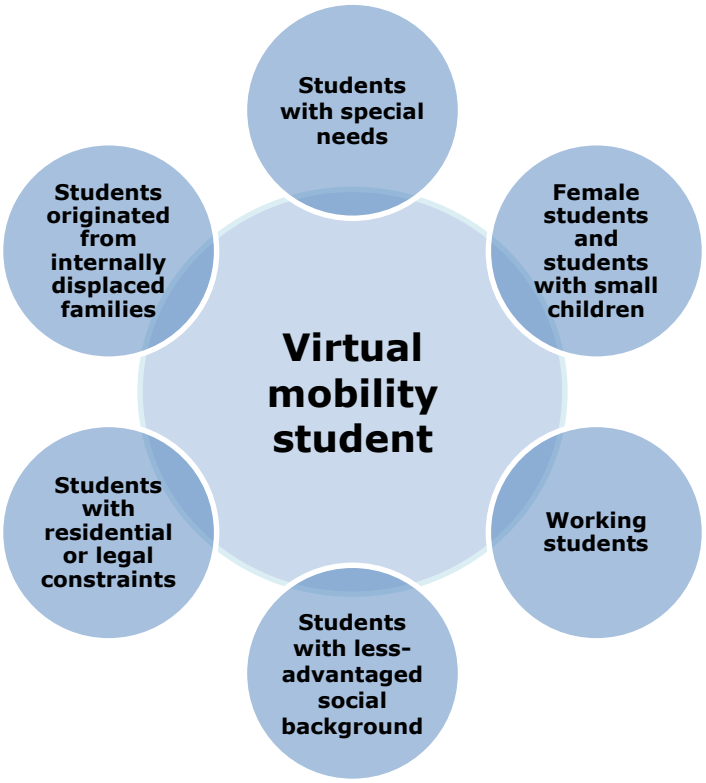
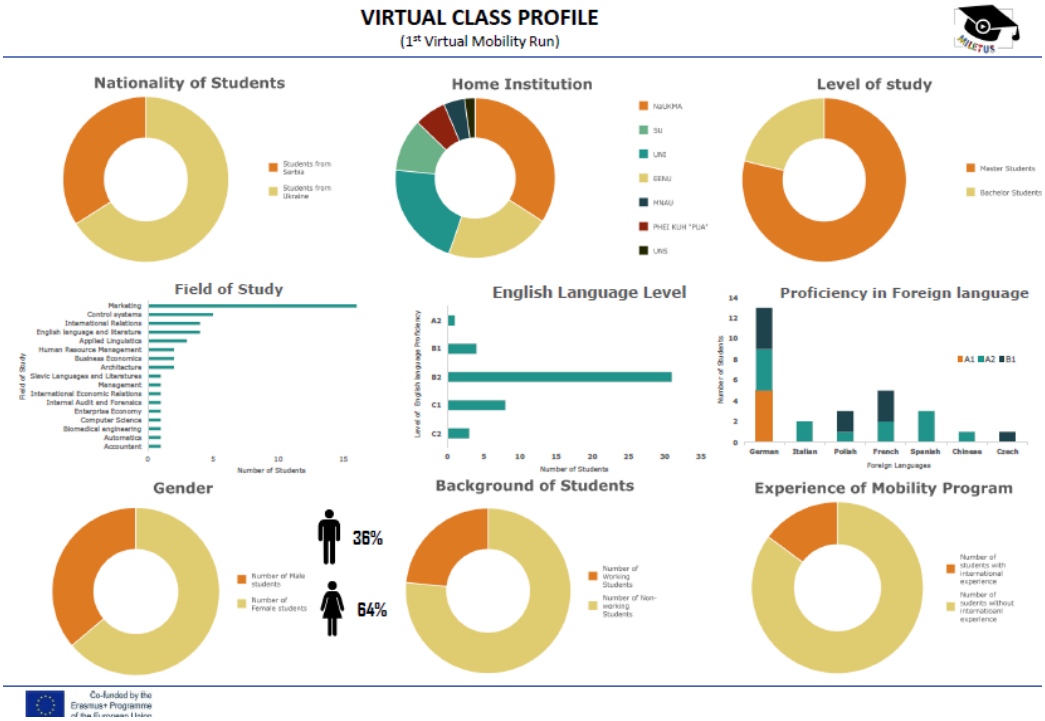



*Figure 1. Important categories of students for virtual mobility*

In three mobility runs realized as part of the MILETUS project (two virtual mobility runs for Bachelor and Master students and one blended mobility run for PhD students), we have observed the high interest and demand for participation of students from the partner universities who are currently prevented from participating in real mobility programmes because of their working and personal conditions, as well as students without mobility experience who sought to take advantage of the opportunities and gain this experience prior their real mobility. The class profile of the MILETUS students for three mobility runs is shown in Figures 2 and 3.



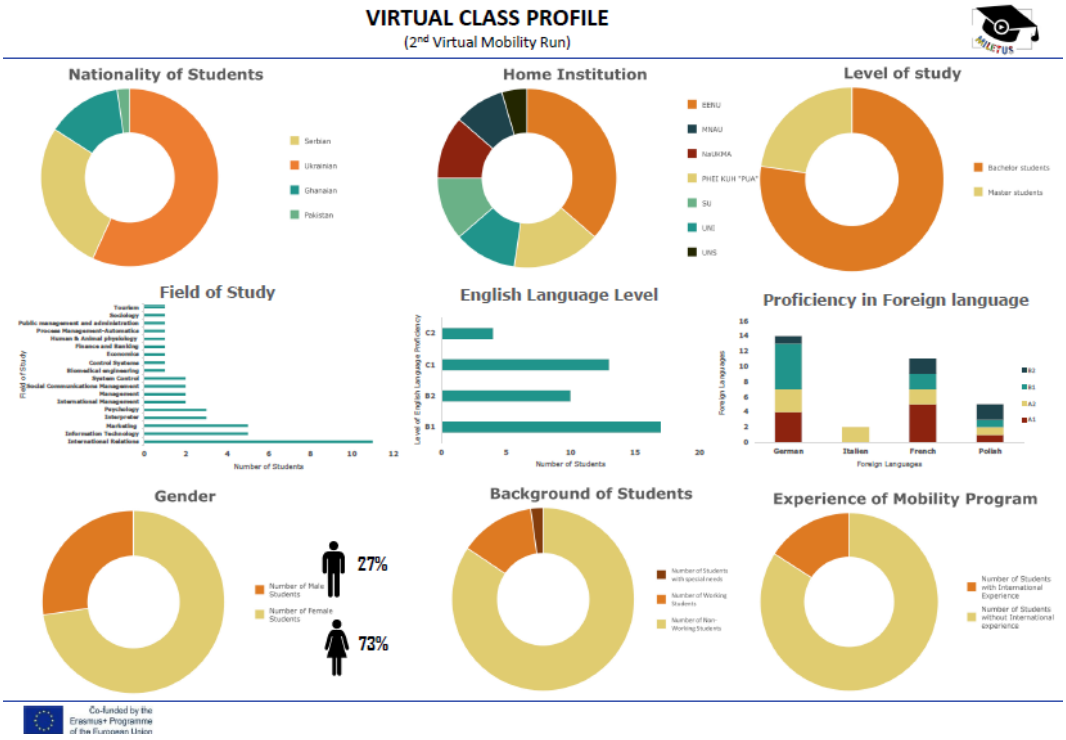



*Figure 2. Virtual class profile of the MILETUS students (first and second virtual mobility runs)*

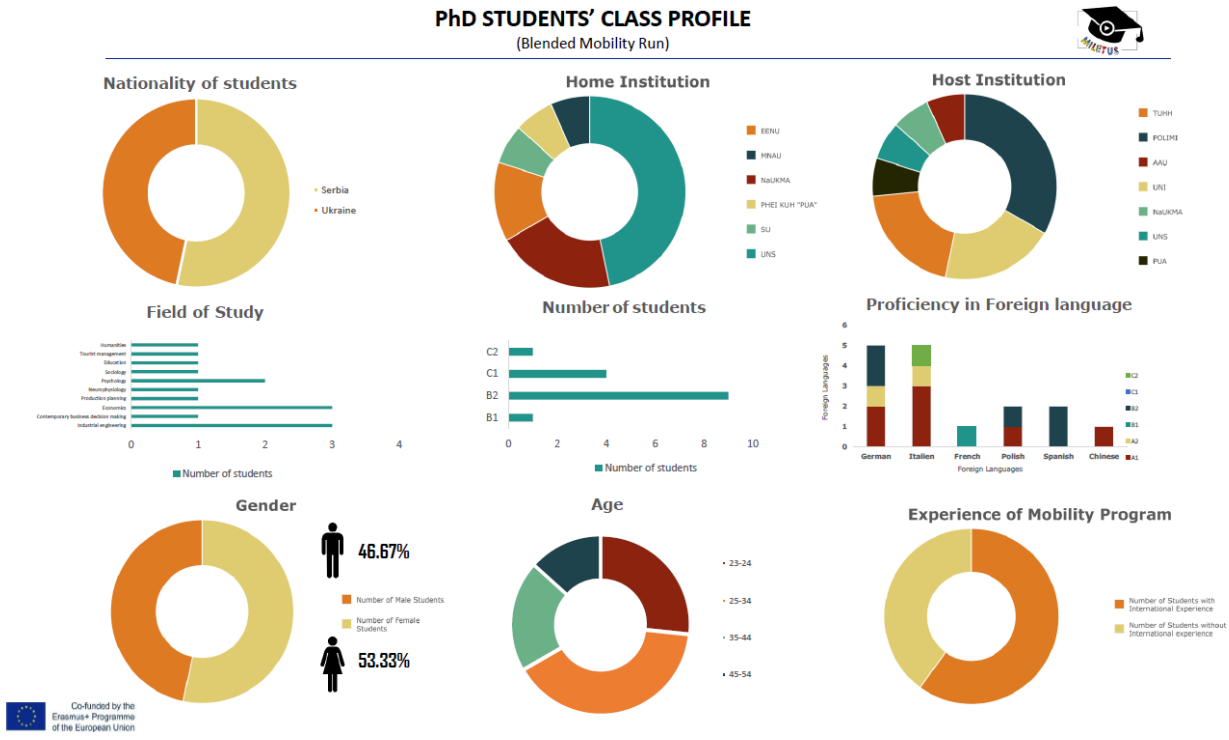



*Figure 3. PhD students class profile (MILETUS blended mobility run)*

## 1.2 National frameworks for the virtual/blended mobility programs

The activities within MILETUS project have started with looking into a definition of mobility and its role in educational process, along with exploring the existing regulatory basis and identified practices in Serbia and Ukraine. The latest Ukrainian Law on Higher Education, which was adopted in 2014, has introduced the notion of "academic mobility" bringing the educational system closer to EU standards. Also, Serbian strategies on Education Development and Youth address the need for mobility and distance learning. However, further development of mobility initiatives and organization of the entire process remain the task of HEIs and in part of the Ministries, calling for additional work in this area.

Ministry of Education and Science of Ukraine (MESU) and Ministry of Education, Science and Technological Development of Serbia (MEST) have been invited to work on the MILETUS project so the project consortium could address some gaps in effective legislation and extend the project's impact to potentially wider range of HEIs. The initial roles of the Ministries were to specify existing regulatory framework or practices in their countries that suggest deployment of already-existing bodies within HEIs or funding of new ones for effective institutional governance of mobility programs, as well as to provide their input and observations related to deficiencies and potential with regard to organizing and performing mobility programs in their countries.

Judging from the reports provided by the Ministries, neither Ukraine nor Serbia seem to have fully established legal framework regarding student mobility, but both Ministries point to establishing successful mobility practices in their countries.

### 1.2.1 Mobility practices and programs in Ukraine and Serbia

The analysis of legal framework in Ukraine has pointed to the lack of instructions and regulations concerning the creation and functioning of institutional governance of mobility programs within HEIs. Regardless, there are several examples of structure and functioning of the bodies handling mobility in HEIs, such as International Office, Academic Mobility Department/Office, or Centre of International Academic Mobility. As for the mobility oriented programs in Ukraine, there was Government program "Training, internship, advanced training for students, postgraduate students, research and academic staff abroad, improvement of professional qualifications of research and academic staff, senior executives and specialists in food, manufacturing, agrarian industry, medical and pharmacy service", which was implemented in 2011-2014. Ukrainian HEIs have also been involved in Erasmus Mundus and Erasmus+ mobility projects, as well as in bilateral agreements on cooperation between Ukraine and other countries. On the other hand, HEIs in Serbia generally have established their International Relations Offices, the parts of which are specifically aimed at handling mobility. The Serbian Government is financing some mobility programs, such as World in Serbia and Serbia for Serbs, as well as realization of bilateral agreements with China, Russia, Italy, Poland, Syria, Korea and Ukraine. In addition, Serbian HEIs have been participating in CEEPUS, Erasmus Mundus and Erasmus+ programs. Recently, the Serbian Government has enhanced promotion of internationalization of education and realization of mobility in Serbia by making publication entitled „Study in Serbia" for distribution at international fairs and through diplomatic-consular offices.

### 1.2.2 Regulatory framework and capacity building for virtual mobility

Both MESU and MEST noticed the problem in recognition of ECTS obtained during mobility, but regulation of recognition process in both countries has been left to HEIs rather than being governed by national legislation. The curriculum development in Ukraine was changed by the new Law on Higher Education in 2014 by shifting the responsibility for educational programmes and list of subjects from the Ministry to HEIs, so the HEIs got more flexibility in the process of recognition. Further recommendation given to HEIs in order to increase the number of recognized courses is to conduct recognition on the basis of the course description rather than title and add them to the individual students plan. In Serbia, the related section of the Law on Higher Education was amended by the statements that "for students who participate in an international mobility programme, the transfer of ECTS credits is possible among different study programmes within all the levels and types of studies" and "criteria and requirements for transferring the ECTS credits and the relevant knowledge assessment are defined by the general act of the independent higher education institution, i.e. by the agreement between the higher education institutions".

New mobility instruments, such as virtual and blended mobility, are being developed in order to enrich mobility of students and researchers. These are particularly suitable for students with restricted ability to travel and participate in real mobility due to some kind of impairment or due to the lack of funding. At the same, these new mobility options may restrain the outbound flow of gifted people in real mobility runs thus alleviating the problem of "brain drain" specific to countries such as both Ukraine and Serbia. However, the current versions of the Law on Higher Education in Ukraine and Serbia do not include any provisions on virtual mobility. A Provision on the Procedure for Implementation of the Right to Academic Mobility was approved by the Cabinets of Ministers of Ukraine in 2015. The key aspects of this Provision were the right to participate in academic mobility programs for all participants in educational process, a clear definition of the types and forms of academic mobility, consolidation of the principle for ECTS credit recognition based on comparing the content of curricula rather than the names of courses, and preserving the placements at home institutions for students and staff involved in academic mobility programs. The document is being updated by MESU, and the 2019 edition includes a statement differentiating mobility by the place of realization into 3 types: virtual, internal and international. Virtual mobility is defined as the one that involves studies/training of Ukrainian participants at foreign institution in a remote or online mode without physical movement. The current regulations on accreditation of HEIs in Ukraine do not foresee accreditation of virtual mobility study programs. Though, the Law on Higher Education allows HEIs, within the scope of their autonomy, to independently choose modes of study, as well as the volume, academic calendar and forms of continuous and summative assessment for every individual study program. Moreover, the Law envisages adoption of regulations on recognition of learning outcomes of informal education into the system of formal education. Recognition of ECTS gained during the programs of virtual mobility does not require additional adjustments in Ukrainian legislation. As for the status of virtual mobility in Serbian legislation, there are no formal obstacles to introduction of that form of mobility into the HE, but there is need at least for an amendment to the Law on Higher Education that would give the National Council the authority to define guidelines for the realisation of distance study programmes, which would also cover the elements of virtual mobility. In that case, Standard 15 for the accreditation of distance study programmes could be applied to virtual mobility programmes as well. However, it is important to note that, according to Standard 15, distance study programme can be accredited only if the HEI has already accredited study programme under the same name which is realised in a classical manner, as well as that HEI may organise a distance study programme for each field and each educational-scientific and educational-artistic field if the curriculum content, supported with available resources, may be

acquired in a quality way through distance studies, and if it ensures the same level of knowledge of graduate students, the same efficiency of learning and the same rank (quality) of the diploma as in case of the regular way of study programme realisation.

Apparently, efforts toward creating the legal framework for virtual mobility are being made in both Ukraine and Serbia, but a number of issues are yet to be resolved. These may include, but are not limited to building foundations for implementation of virtual mobility projects at institutional level, providing new solutions for accreditation of virtual/blended mobility programs or courses, regulating the process of awarding the ECTS credits to virtual mobility participants and providing other formal means to motivate them, providing the complete study programmes in virtual mode for physically challenged students, providing the appropriate recognition and/or stimuli to teachers involved in virtual mobility, etc.

## 1.3. University approaches to promotion and implementation of virtual / blended mobility, university policies and regulations towards virtual mobility

### 1.3.1. University internationalization strategy in the context of general university strategy

Findings of the MILETUS DEV 2.3. Upgrading International relations Offices or founding Students' Mobility Offices on a need's basis and the in-depth questionnaire MILETUS Serbian and Ukrainian partners were working on in 2017-2018 within this DEV have confirmed that successful and productive development of internationalization depends on coherence of internationalization activities of a particular university with its general strategy. According to Laura E. Rumbley, currently Associate Director, Knowledge Development Research at the European Association for International Education (EAIE) university internationalization

- is a relatively new but broad and varied phenomenon;
- driven by a dynamic combination of political, economic, socio-cultural and academic rationales and stakeholders;
- it impacts regions, countries and institutions in different ways according to context;
- there is no single model that fits all;
- an ongoing process – not a goal in itself;
- a means to an end – those "ends" are dependent on the particular needs, interests, resources, and aspirations of each specific higher education institution or system.

Therefore, the universities, thinking about international activities, should consider, how these activities would "co-exist" or would support general university aspirations.

Findings from the MILETUS partner universities demonstrate, that many project partners are not fully satisfied and are still working in this within their universities.

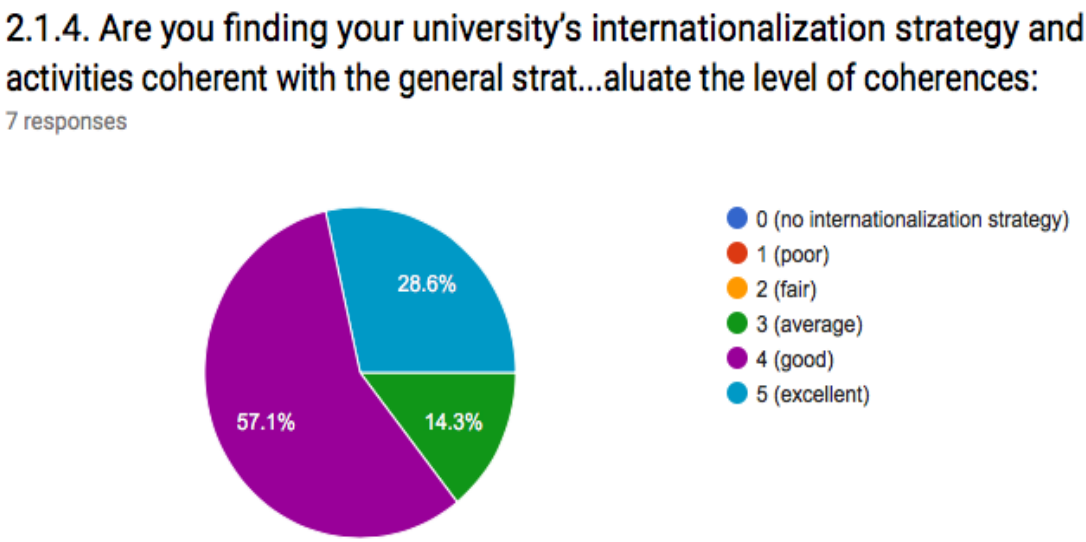



*Figure 4. Coherence of internationalization activities of the MILETUS partner universities with their general strategy*

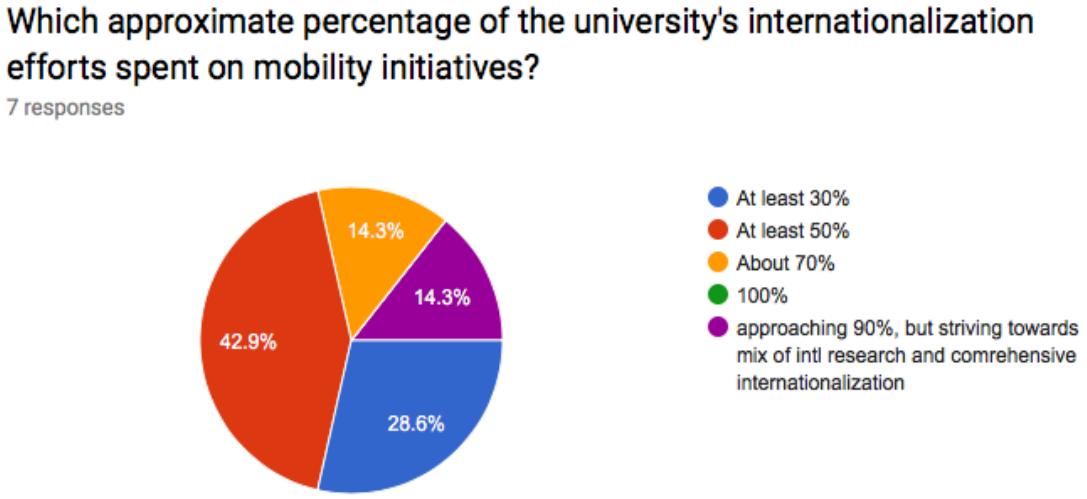



*Figure 5. Efforts of the internationalisation activities of the MILETUS partner universities spent on mobility initiatives*

### 1.3.2. University international mobility strategy, strategic goals for student mobility development

Nowadays international mobility is mostly defined as a main university's activity within their internationalization efforts, which is confirmed by the findings from the MILETUS DEV 2.3.

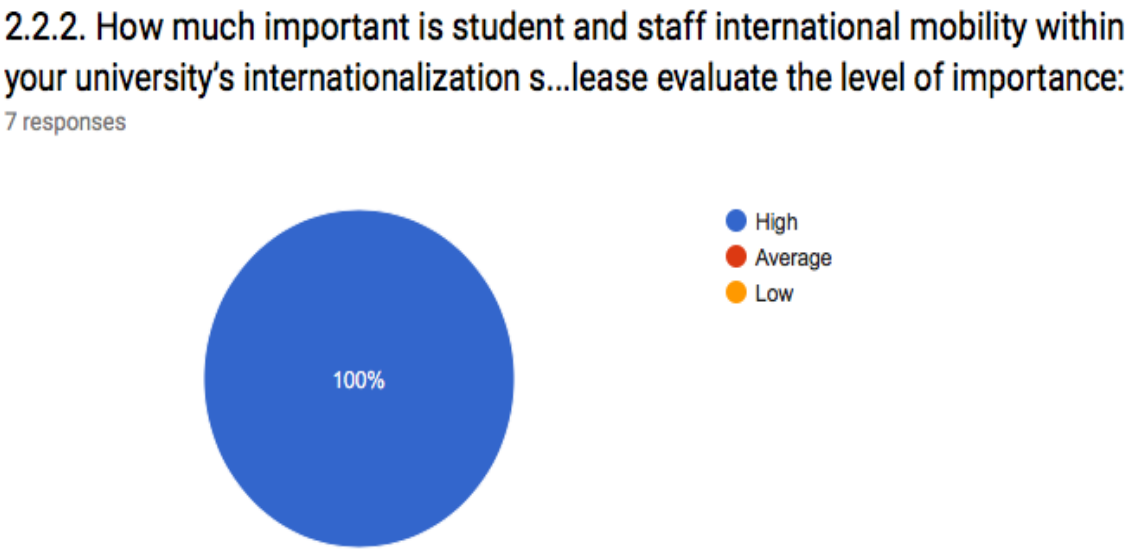



*Figure 6. Importance of student and staff international mobility within the internationalisation of the MILETUS partner universities*

Similarly, as internationalization in general should fit university strategic aspiration, mobility should support and to be an integral part of internationalization strategy and would fit the unique university practice of the particular university. If this is not the case, university, even launching mobility programs, would most probably face numerous programs, like recognition of courses (credits, grades); opposition of the faculty members, who would acknowledge only courses and programs, their teaching internally, without any possibility of considering substitution of these courses by ones, studied during the mobility; difficulties of academic integration of international students etc.

Answering the in-depth questionnaire within DEV 2.3., MILETUS Serbian and Ukrainian partners have provided the following diverse strategic goals or/and plans for development of international (student) mobility

- to increase % of the students from abroad here and vice versa;
- to increase quantity of academic programs (development joint degree programs with foreign partners; formation of a package of international credit mobility projects;
- implementation of a practice of classes in English; inclusion of virtual mobility in educational process);
- to start using mobility for traineeship;
- to increase number of foreign students enrolled at our university;
- to diversify the partners (e.g. include Turkey among Erasmus+ partner);
- to develop more double/joint degree programs with mobility component;
- to enhance Internationalization of the student experience and curriculum".

At the same time, not all MILETUS partners have confirmed, that they have exact strategic plans (vision) on the development of international mobility at their universities. Therefore, we could assume that in some cases mobility project appear sporadically; they could be initiatives of separate faculty; mobility initiatives in place could be a response to the "fashion", without clear university analysis on the skills and knowledge, students could develop through participation in the mobility

programs in the context of skills and knowledge, expected from this university (its separate programs) graduates.

MILETUS partners evaluated the current status of the coherence of international mobility activities with their university strategic tasks in the following way (within implementation of DEV 2.3.):

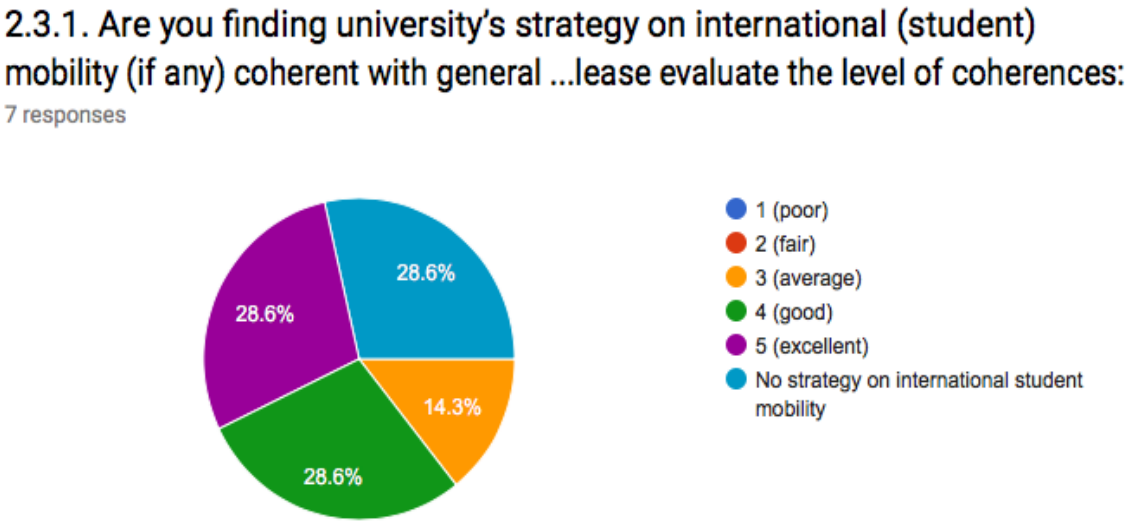



*Figure 7. Coherence of international students' mobility within the internationalisation strategy of the MILETUS partner universities with their general strategy*

Most of the universities (among MILETUS partners) from Erasmus partner countries are using ERASMUS+ as core of their mobility initiatives (KA107 - International Credit Mobility). It is remarkable, that starting from 2019, in the course of MILETUS project implementation Serbia changes its status from the partner to program country, therefore currently it is part of Erasmus+ KA103, which support mobility within program countries. MILETUS partners are also implementing mobility through bilateral agreements; Eurasia project of the Norwegian Center for International Cooperation in Education; mobility within Erasmus+ KA 1 Joint Master Degree Program; mobility within DAAD funded programs (e.g. Joint Master's programs); joint / double-diploma programs.

**Best practice example**

*One of the partner university National Kyiv-Mohyla Academy (NaUKMA) is received international free movers within incoming mobility. Horizon 2020 was mentioned as powerful instrument of different kind of staff (researches) mobility.*

### 1.3.4. University regulations of international mobility of students in the context of university autonomy

University activities in international mobility are definitely dependent on the national regulations (please find the appropriate section above). At the same time, very often national regulations define only very general or key conditions of the mobility (e.g. courses, credits and grades, learned or earned credit mobility should definitely be recognized by home university; credit mobility should not lead to the extension of the period of studies and to be integrated to the educational process etc., according to the Ukrainian national mobility regulations of 2016). At the same time the

universities should use their rights for academic autonomy to the heist extend so that to "fit" mobility to their educational philosophy and practices.

**Best practice example**

*NaUKMA is using its Liberal Art Approach principles to accommodate international mobility from the student-centered perspective: each of the NaUKMA Bachelor or Master program contains at least one-third of elective courses (professional electives and free electives, the last should be taken from different subject fields, than the student major); some programs could have more of elective courses (credits), than mandatory ones – thus, NaUKMA 120-credit 2-year Master Program in Law has only 19 ECTS credits of mandatory courses and 69 ECTS credits of elective courses (rest of the credits do for internship and master project). Such an approach allows NaUKMA to include into its Mobility Regulations the provisions, allowing the department to recognize courses (credits and grades), taken during international mobility, which have no equivalents at NaUKMA (by title), but which could contribute to skills and competences, expected of the NaUKMA graduates.*

### 1.3.5. Virtual/blended mobility integration into university mobility policies, regulations and practices

Universities could choose different approach to integrate virtual mobility into their practices, these options and possibilities are analyzed in the section 3.1.1 of this document. Universities could consider practicing virtual mobility within its formal or informal curricular, therefore placing it within "internationalization of curricula" or general "internationalization at home" practices[1]. Accordingly, universities could need different types of institutional regulations. Those, if virtual mobility would be implemented as a form of virtual exchange (matching classes), most probably no special amendments to a university regulation could be needed. At the same time if a university would decide to recognize courses and credit, taken at partner university virtually, this university would need to include such option into the university regulations of international mobility.

**Best practice example**

*In the course of MILETUS project, University of Nis (UNI), Nis Serbia. confirmed its commitment to elaborate regulations for recognition of virtual mobility in the scope of the Action Plan for Internationalisation for 2018-2020.*
*NaUKMA in 2018 already included virtual mobility (recognition of virtually taken courses, credits, grades) as one of the mobility formats for students with special needs and students, who due to their family etc. reasons do not have possibility to participate in real mobility.*

### 1.3.6. University structures in charge of real and virtual mobility

One of the MILETUS projects tasks were establishing of students' mobility offices (SMOs) or improvement of their performance. In the course of this task implementation it became clear that there is no universal recipe for establishing SMO or any other university unit, which will be directly in charge for students' mobility. The place in a university structure, staff composition of such an office, its cooperation network could depend on the university size, on the scope and size of mobility programs the university is implementing, administrative traditions of a university, e.g. centralized or decentralized management. The most usual practice, demonstrated by the MILETUS partners is the existence of SMO as a sub-unit or section of international office. Universities, which are only

[1] An example of virtual mobility as activity within informal curriculum can be checked within University of Kent, UK, *KentExtra* Program https://www.kent.ac.uk/studyplus/

launching student mobility, could have only an officer, which would be in charge of coordinating international mobility. Anyhow, it is important, that the university, willing to develop international mobility, would have an exactly defined administrative unit (position), which (who) would concentrate knowledge about possible mobility formats (including virtual mobility), as well as coordinate the university efforts in this direction. At the same time, it is important, that such a unit or person would not work in isolation, without proper communication with the faculties, other administrative or academic units of the university, so that mobility (real or virtual) would not remain disintegrated from the academic process, be it formal or informal education.

Sample of the network of SMO (IRO staff in charge of mobility) staff communication with other university stakeholders, involved into launching, implementation of mobility, elaboration of mobility regulations etc. was demonstrated by UNI in Figure 8.

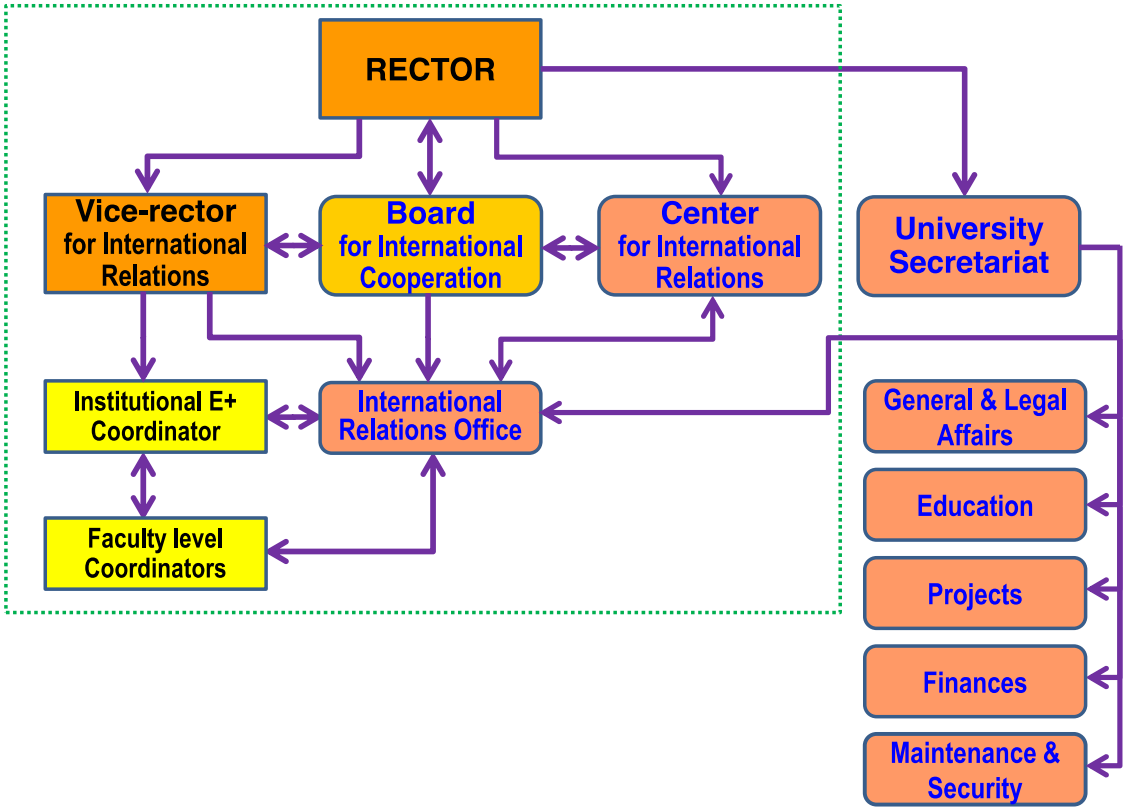



*Figure 8. Example of the position of IRO at the University of Niš, Serbia*

## 2. Methodological approach to the MILETUS mobility programmes

### 2.1. Methodological frameworks for the MILETUS mobility programmes

Effective implementation of the students' mobility is important for both sides – for Higher education institutions (HEIs) and for students. For HEIs it is some kind of competition and priority to have approach to the talented students in a fast changing world. For students it is very important to have mobilities in order to have opportunity to learn from the best experts/professors in the field and

that they can be introduced in different culture and methodologies in study, education and research. Type of mobility programmes can be divided in: (a) Virtual Mobility (VM); (b) Physical Mobility (PM) and (c) Blended mobility (BM) or combination of VM and PM. Table 1 summarizes the main characteristics of VM and PM.

**Table 1. Main differences between physical and virtual mobility**

| Physical Mobility (PM) | Virtual Mobility (VM) |
|---|---|
| **- on-site: physical travel and stay in a country abroad** | - from home, university or work place, no physical stay abroad |
| **- for limited period** | - no restrictions in length of time spent studying |
| **- takes substantial amount of time and creates additional cost** | - time and cost effective |
| **- student has face-to-face activities, teaching and meetings** | - no direct face-to-face activities |
| **- social, cultural and educational enrichment** | - access to courses and study schemes in foreign country, communication with teachers and fellow students abroad via ICT |

In the framework of the MILETUS project, the specific methodology for student's mobility has been developed. MILETUS team tested, within the consortium, virtual mobility program for Bachelor and Master students. The MILETUS team provided not only online courses for student, but a complete concept of the project-based Problem Based Learning (PBL), encouraging interaction in international environment and students team work as well as problem-solving approach from students' side. The methodological approach of the MILETUS team for PhD students has been oriented towards blended mobility programme, combining phases of virtual and real (physical) mobility for PhD students.

## 2.2. MILETUS virtual mobility programme

According to the research which MILETUS team conducted the motivation of students for virtual mobility programme can be classified as: (1) more independence in the selection of study and research field; (2) flexibility of tailoring schedule and type of university courses; (3) benefit from the engagement of business entities in the educational process; (4) using advanced and up-to-date learning platforms and modern didactic materials; (5) networking, which means meeting colleagues from the same or similar field of study, enhancing international career prospects.

The basic concept of virtual mobility programme designed in the framework of the MILETUS project is depicted in Figure 9.

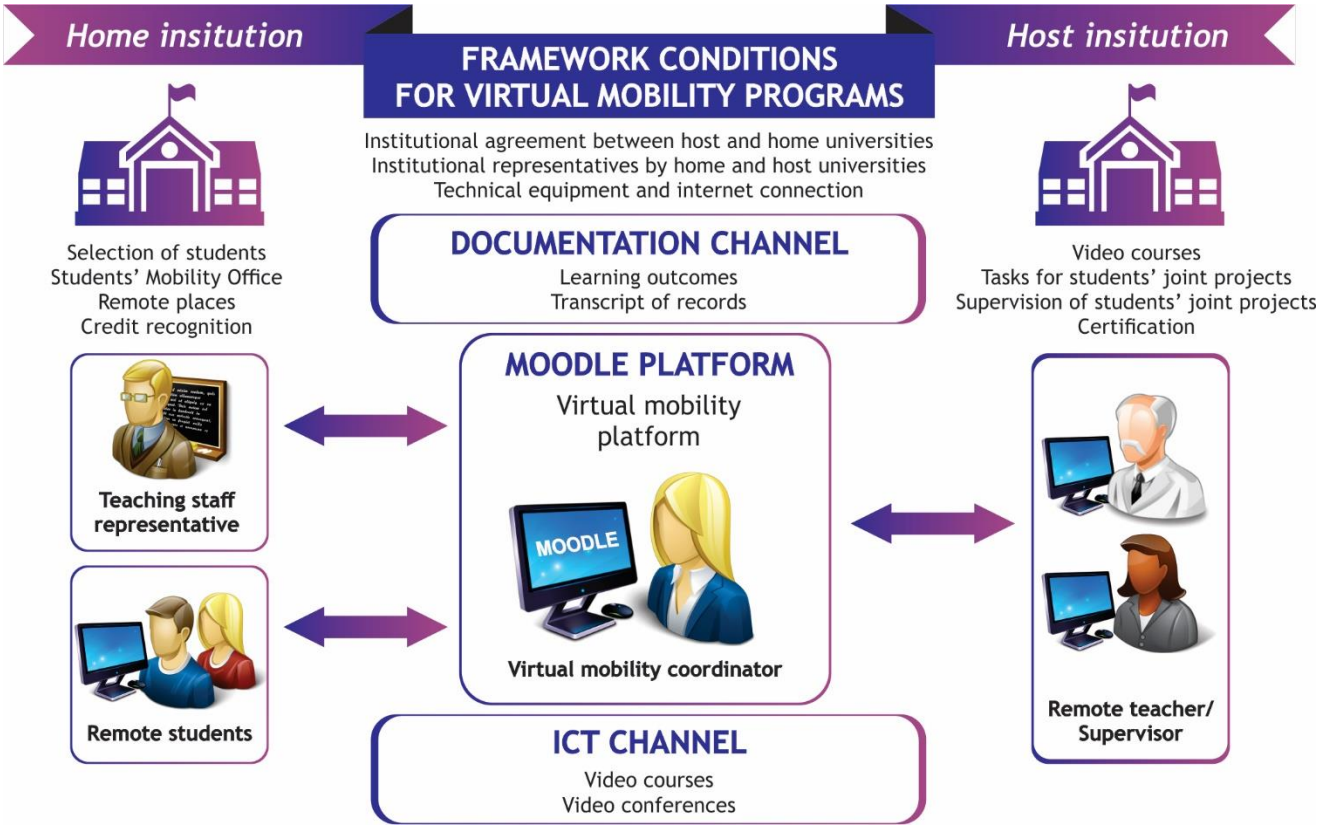



*Figure 9. MILETUS virtual mobility methodological approach*

The main actors for providing the adequate quality of the complete virtual mobility programme are: (a) home institutions which organize this programme; (b) students and (c) host institution which provides teachers/professors with the expertise in a specific field of science. Modern ICT platform is used in the whole process. MILETUS team has developed Moodle platform on which all educations materials, tutorials, videos can be accessible. The Moodle platform can be approached through the following link: https://sova.uns.ac.rs and the home page can be seen below in Figure 10. This platform can be also used for: communication among students, communication between student and supervisors, different forums, posting and fulfilling questionnaires, etc.


*Figure 10. The Moodle platform which supports VM and BM in the framework of the MILETUS project.*

Institutions are responsible for complete process of organizing this programme, usually through organizational unit such as International Relations Office (IRO) or other units responsible for students' mobility e.g. Student Mobility Office (SMO). Home and host institutions will also specify the list of learning outcomes and how many credits (ECTS) will be given to students and it should be specified in institutional agreement.

Professors at host institutions participating in virtual mobility programme are responsible for the quality assurance of the academic process and for quality of courses and educational materials which are created. MILETUS team for each run of the mobility (two virtual and one blended) nominated a VM or BM coordinator. The coordinator provided organizational support and he/she was some kind of the bridge and mediator between students' participation in the mobility programme and supervisors.

MILETUS virtual mobility methodological approach enables participation of various groups of students, because the learning environment becomes accessible to remote presence for students which cannot attend classes on HEIs from various reasons, for example: students who parallel have to work and study, lifelong learners, students with disabilities, etc.

The methodological phases for implementation of virtual mobility programme are:

- HEIs announce open call with criteria and deadline for application;
- Usually IRO (or other administrative office) should receive students' applications;
- Selection of the specified number of the best (who fulfill established criteria) students for VM;
- Implementation of VM programme;
- Assessment of student performance;
- Assessment of the quality of VM programme;
- Potential improvements in the VM programme.

Supervisors (professors) from host institutions (experts in the field) provide teaching materials. Each lecturer provides course unit title and, in the template, specifies objectives of the course, course content, learning outcomes of the course unit as well as recommended literature for students who participate in the VM programme.

In order to enable easier implementation of the VM programme, MILETUS team launched idea to introduce "virtual buddies" – similar to a real-mobility buddy, however adjusted to the virtual context. A virtual buddy would provide online help for VM participants in various terms: to more easily find their way around the platform used for virtual mobility, to utilize its full potentials with all its tools and utilities; to utilize full potentials of the course. The virtual buddies would also encourage students to share their work and experience with colleagues (other participants in the subject VM) and get better acquainted with all electronic didactic materials used, etc. In order to encourage students to participate in the virtual mobility programme, involving students, those who already benefited from VM or/and those experienced in using the suitable online platforms and tools is recommended. As a first step towards the implementation of the virtual buddy idea, the students of one of the host universities (TUHH), taking part in the semester problem-based learning course and joint projects, were asked to prepare and record the supporting video for the students of the MILETUS virtual mobility programme in order to explain the particularities of teamwork in the project groups and the responsibility for the final results. Several innovative communication tools (e.g. Slack) based on the virtual buddy recommendations were also successfully used by some students' groups to communicate with each other and with the group supervisor. After

implementation of the MILETUS virtual mobility runs, students and supervisors obtained Certificates of participation in the VM programme.

## 2.3. MILETUS blended mobility programme

The MILETUS blended mobility programme is devoted to the PhD students and it is designed from the following phases:

- I phase, virtual mobility lasting 2 months;
- II phase, real (physical) mobility lasting 2 months;
- III phase, virtual mobility lasting 1 month.

The first phase is dedicated to establishing the channels of communication and cooperation between the PhD student and Supervisor through emails, Skype and other communication tools and/or Moodle platform. This phase is exactly preparatory phase for physical mobility. Topic and title of the research project is defined as well as literature and other useful sources of information in the field are shared.

The second phase is real mobility where PhD students from one institution has secondment to another institution and practically he/she has been incorporated in the local team, conducting research activities under supervision of the experienced professor from the host institution. The results of this phase are the research paper ready for submission at some international conference or peer-reviewed journal.

The last phase represents the finalization and the polishing research paper and its submission and this phase is implemented as virtual mobility run.

After implementation of the MILETUS blended mobility runs: (1) students and supervisors obtained Certificates of participation in the VM programme; (2) the Individual Work Plan of the PhD student for the MILETUS blended mobility is created; (3) PhD student creates individual report on performed activities, (4) PhD students obtained the experience letter signed by the professor, supervised the research work of the PhD students, which could serve as a recommendation for the students and could bring benefits to their further employment chances

## 2.4 Selection criteria for virtual/blended mobility programmes

In accordance with the developed Methodology in the framework of the MILETUS project, the participants in mobility runs have to comply with the following criteria:

- Mobility runs candidates have to be registered at the MILETUS project partner HEIs and enrolled as a fulltime student of one of the following programmes:
  - a Master's and Bachelor's (3rd and 4th study years) programme (for virtual mobility runs);
  - a PhD programme (for blended mobility run).
- Only candidates, who have applied to and have been accepted by a Selection Committee in accordance with its specific candidates' application and selection criteria, are eligible for the mobility runs;
- Candidates must have a good knowledge of English language;
- Candidates must fill in the online application form that can be accessed at the authorized website and upload all supporting documents in digital form, including the relevant certificates. No original official documents need to be sent at application;
- The following criteria will be also considered:

- Quality of Application Form (Application Form is a template that must be completed; all application fields must be completed; all required documents must be submitted);
- Research experience (motivation/interest for scientific purposes for PhD students);
- Personal motivation.

## 2.5 Evaluation criteria for assessment of students learning performance

Assessment of the student performance, according to the developed Methodology for VM programme within the MILETUS project, is based on the following criteria:

1. Student`s participation in video lectures;
2. The results of the multiple-choice tests;
3. Project preparation;
4. Joint team work over the project.

The weighting of final grade is 25% for learning activity (items 1-2) and 75% for the joint project (items 3-4).

For items 1-2, it was applied 0.5 ECTS credit requires 15-25 hours of work (depending on volume of video lectures) over the subject and the following scale of evaluation:

- test – 60%
- attendance/participation – 20%
- online homework assignments – 20%.

For above-mentioned items 3-4, it is suggested that following indicators should be evaluated:

- ability to set a common goal (5%);
- defining roles between participants (5%);
- coordination of work (10%);
- ability to communicate (10%);
- ability to collaborate (10%);
- participation in project preparation (30%);
- student`s contribution to the project (20%);
- presentation of the results of the project (10%).

## 2.6 Problem-based learning for interdisciplinary projects

A choice of an appropriate learning environment and course design for virtual mobility is essential to maximize the depth of learning and achieve the most effective learning outcomes and mobility objectives, such as improving communication and foreign language skills and international competences of students.

Different approaches to collaborative learning such as problem-based learning, digital storytelling with a particular focus on virtual mobility are demonstrated in several projects and best practices (ONL, InterMeCo; Otto, 2018); it is essential that the supportive learning methods for virtual mobility should be student-centered and include problem- and project learning to help students develop their communication skills and abilities for working in international groups under on the real-world problems.

Due to the diversity of the partner universities involved in the MILETUS project and the students participating in the mobility runs, project-oriented Problem-Based Learning (PBL) was adopted as a learning methodology within the MILETUS project. This didactic methodology enables a strong

orientation towards the interdisciplinarity of the learning processes and facilitates the work of students in small groups, while the interdisciplinary research topics should be solved mutually.

### 2.6.1. Project-oriented PBL approach

***PBL as innovator in a learning economy***

In a globalized digital world as new technologies continue to emerge, production of knowledge is getting independent of higher institutional education (HEI). In a learning economy the process of learning knowledge is transformational changing. Universities are unavoidably facing the deep transformation of learning theory. The shift of the core of education from teaching to learning stands out as one of the most significant. More weight is placed on the process of learning knowledge than on teaching it. New learning technologies democratize education, improve the quality of learning, advocate peer-to-peer collaboration and give learners a greater sense of autonomy and responsibility for learning

Problem Based Learning (PBL) is a learning strategy with focus on emphasizing collaborate work on problems relevant to society and emphases the relation between theory and practice. Unlike traditional learning PBL actively engages the student in the construction of knowledge where the role of the tutor is to guide and challenge students rather than to transmit knowledge.

PBL as methodological framework for virtual and blended mobility runs PBL fosters:

- Students from different educational institutions also across borders (internationalization) can participate;
- Intercultural collaboration among students and teacher;
- Interaction between students makes blended learning experience for all involved;
- Enabling social inclusion;
- Improve students' employability from practical experience in collaboration and intercultural knowledge exchange.

**PBL principle**

PBL can take different forms according to the specific educational contexts, but with some common goals or aims in the problem-based curricula:

1. Constructing an extensive and flexible knowledge base;
2. Developing effective problem solving and metacognitive skills;
3. Developing self-directed learning skills;
4. Becoming effective collaborators;
5. Becoming intrinsically motivated to learn.

PBL takes a social constructivist approach to learning where students and teacher co-create knowledge together in participative and collaborative learning environment.

From the view of the position of the teacher in the process three approaches evolves:

**The cognitive learning approach** means that learning is organized around problems and will be carried out in projects. It is a central principle for increasing students' motivation. The problem provides a starting point for the learning processes, places learning in context, and bases learning on the learner's experience.

**The contents approach** especially concerns interdisciplinary learning, which may span across traditional subject-related boundaries and methods. It is exemplary practice in the sense that the learning outcome is exemplary to the overall objectives, and the content supports the relation

between theory and practice. The learning process involves an analytical approach as theory are used in the analysis of real-life problems and both theoretical and empirical problem-solving methods.

**The social or collaborative approach** is team-based learning. The team learning aspect underpins the learning process as a social act, where learning takes place through dialogue and communication. Furthermore, the students are not only learning from each other, but they also learn to share knowledge and organize the process of collaborative learning. The social approach also covers the concept of participant-directed learning, which indicates a collective ownership of the learning process and, especially, the formulation of the problem.

In the PBL approach, the content (e.g. traditional lecture materials or assigned readings) is sought out as a part of the larger process of solving a problem. Students decide, often with the help of the tutor, what they need to know in order to successfully devise a solution and then actively seek it out (amongst resources that may or may not be provided by the tutor). In this way, students are actually defining their own learning outcomes and the knowledge acquisition becomes a means to an end, rather than the end goal itself.

PBL becomes an open problem-based learning and student-controlled project work. Therefore, teacher and facilitator role are not to ensure that students use specific knowledge, but rather a question of guiding them to give reasons for and make central choices in the learning process within the outlined professional frames.

In everyday life, a 'problem' has negative connotations, pointing at something troublesome that must be sorted out. In PBL, however, a 'problem' is constituted by the questions, that can be asked about a situation or a concept, of which one or more are particularly relevant for one's education.

**Tips for virtual mobility**

*We recommend virtual mobility run at the conventional bachelor (Cycle 1) programme comprising 4 or 5 semesters the social or collaborative approach. At this time of the training programme the students possess some profession-specific skills as well as basic routine regarding higher education processes, and are aware of how the system functions.*
*For master (Cycle 2) programme comprising 3 or 4 semesters and doctoral (Cycle 3) programme, all approaches might be relevant. Flexibility in choosing approach is called for because of diversities across scientific disciplines and subject area.*

**PBL challenges**

Motivation of students and teachers to participate in a virtual blended mobility run must be a transparent and properly regulated credit recognition system (ECTS) which provides security to the student's outcome and make the recognition of credit acquired abroad automatically.

The institution must determine which of their programmes, and which semester is best suited to accommodate a PBL approach. A full semester (30 credits) or at least 20 credits is transformed to the PBL learning platform.

At the level of individual programme revision of the existing program template and restructuring the courses is based on definition of learning outcome (objectives) for the program and courses. Objectives are important to establish a pedagogical interchange so that teachers and students alike understand the purpose of that interchange.

Having an organized set of objectives helps teachers to:

- "plan and deliver appropriate instruction";
- "design valid assessment tasks and strategies"; and
- "ensure that instruction and assessment are aligned with the objectives."

PBLs essential characteristics include the organization of integrated curricula generated by a progressive learning structure, within a given thematic framework around problems in addition to an emphasis on cognitive skills (Figure 11).

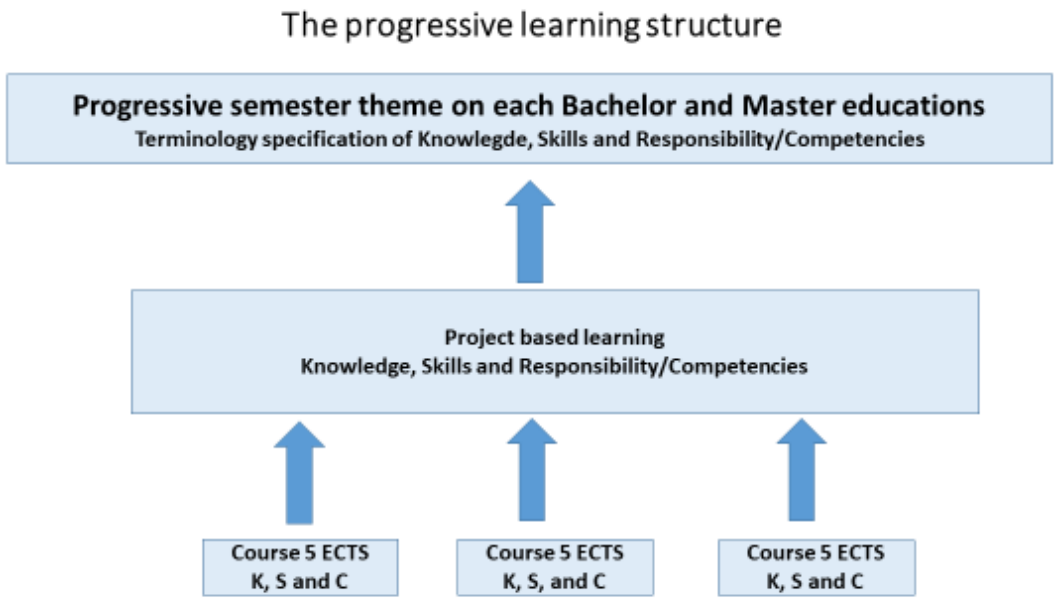



*Figure 11. Illustration of the progressive learning structure (Aalborg University)*

The structure is usually that students find an initiation problem in society within the given thematic framework, analyse the problem, formulate a more specific problem statement, and finally embark on a problem solution. Students learning becomes relevant such as it reflects or exemplifies relevant societal, material and social structures, which involves integrating information across multiple domains and working with exemplary topics and problems.

Unlike traditional learning PBL actively engages the student in the construction of knowledge as a self-regulatory process of dealing with the conflict between existing personal models of the world, new insights an individual encounter from reflection, information exchange with groupmates, teacher and tutors.

In the virtual mobility run student motivation to participate depend not only on a clear understandable learning structure and security of the credit acquired. Forming a group of students up to 6 persons from different institutional size, location and availability of digitized technology can provide a formidable barrier for a participative and collaborative learning environment. The group must take control and responsibility for own learning, develop and build relationships through shared understandings by creating a learning community founded on mutual trust and dialogue. Essential becomes careful selection of students with strong motivation for gaining intercultural knowledge exchange.

An open collaborative learning platform must be available to educators, administrators and all group members of students such as Moodle which underpin a social constructionist pedagogy.

The startup process to a virtual PBL mobility run requires common understanding among tutors and students of the learning structure and the thematic framework and the student's future collaboration achieved through a one-week physical workshop.

**PBL Supervision/Facilitation**

PBL is defined by practicing a student-centered approach with emphasis on students' motivation and learning experiences. It is a significant change in the traditional student's and teacher's roles because it is the student responsibility to make the agenda, take initiative and secure the needed learning outcome. But student-centered learning does not happen by itself; it has to be facilitated, i.e encourage student to analyse and give reasons for and make central choices in the learning process within the outlined professional frame. The teacher role is changing to a process guide who works with a group of students to assist it to achieve a self-defining purpose.

The role is different from the traditional interpretation of supervision as a hierarchy between the supervisor and the students being supervised, so the supervisor is the project leader directing the students learning process.

**Experience gained in the MILETUS virtual mobility run.**

First and second virtual mobility run (Bachelor and Master programme) was characterized by high degree of uncertainty both for student, administrative staff, teacher and supervisor involved. The missing legal framework for an academic framework based on virtual mobility is a cornerstone for the uncertainty. The result was that student have little or no understanding of the project synoptic, how to apply learning from courses, and how to structure the project.

Participants in the virtual mobility runs lack motivational understanding of the outcome for participation. The reason is the missing definition of the learning outcome for the program and courses. Further participation did not release credit (ECTS).

The Moodle platform was not known or experienced by all students, which entails missing communication among students and supervisor and complicated transference of materials and paper.

An intercultural collaborative group of up to four students was not established and the result was individual output to be evaluated.

An important lesson from the first and second virtual mobility run is that establishing collaborative intercultural groups of students with the aim of submission of project or seminar work or master thesis is difficult to succeed, when only the teaching staff develop task for the mobility run and collaborative format for the students.

When mobility is an organic part of the program it might take a more flexible structure engaging students, teacher and tutors in a dialogue around an engaged pedagogy that produce self-directed learning.

Success in mobility run depend on how student take responsibility and control of own learning in a blended group of intercultural brains. A blended group of students must have a free choice to construct the learning outcome within the frame of project synoptic based on clear learning objectives. Unlike traditional classroom, teaching a learning strategy requires knowledge creation through critical discourse and dialogue.

The experience is further that the supervision cannot allot the task and guide the entire process. That is a top-down teaching approach with limit motivational content for student participation in the learning context.

**Tips for virtual mobility**

*We recommend that the first and second mobility run is based on a problem-based learning platform where student takes responsibility for own learning and the teacher becomes a facilitator for the learning process. This role cannot be assigned to the virtual mobility coordinator, having more organizational and administrative functions in the virtual mobility run. The specific training should be offered for all actors involved in the learning process during the virtual mobility run, including supervisors, tutors and facilitators.*

Interaction between participants in the PBL group is the key element to successful blended learning experience for all involved. Before virtual communication among intercultural diversity students can function and to have common understanding of the project synoptic, a one-week (minimum 5 days) workshop is required with participant of all students and teachers. Personal knowledge, exchange of experience, improvement of understanding, and sharing of knowledge is prerequisite for group dynamic in a learning environment.

The third blended mobility run (PhD students) is an individual learning situation with two virtual mobility run and one cross-regional blended mobility run. Our experience is that this mobility run is applicable in future mobile run but with the important notice that the mobility run does not release credit.

# 3. Organisational approach to the MILETUS mobility programmes

## 3.1 Organisational issues for MILETUS mobility programmes

### 3.1.1. Possible scenario and instruments for inclusion virtual mobility into the universities' Bachelor and Master's programs: experience of MILETUS and other projects

MILETUS project did not necessarily have as its goal inclusion of virtual and / or blended mobility into the regular academic process, making it part of the formal education. It was left for the project team and each individual university to decide on this issue, depending on particularities of study process organization at each particular university. At the same time the project reality, when the students were not getting ECTS credits at their home universities for participation in MILETUS VM and MILETUS VMR was outside of the general study program, were among the main reasons of low interest of Serbian and Ukrainian students' interest in joining these mobility runs (see the section below for more details of these challenges, faced by the MILETUS project).

Taking this experience into consideration, MILETUS partner and other universities, interested in implementation of VM, should carefully consider, if VM should be integrated into the formal curricular or should remain as part of the informal (extracurricular) offer for their students. Decision should depend on teaching and learning models, educational contexts, internationalization ambitions, readiness for academic flexibility at each university and many other factors. MILETUS model piloted is adjustable to both scenarios mentioned, while thinking about place of VM at a university the main focus of any mobility (real, virtual or blended one) as the student-centred, international experience should definitely be preserved. Universities, willing to implement VM

should also agree on the core task of VM in their educational setting. For example, if VM is expected to substitute the real one for special categories of students or to extend the numbers of students, who could potentially participate in any international mobility, it should definitely be based on the principle, comparable to ones, regulating real mobility. In such a situation VM should rather be part of formal curriculum and should be organized according to the Erasmus+ Guide recommendations, which state "To ensure high-quality mobility activities with maximum impact on the students, the mobility activity has to be compatible with the student's degree-related learning and personal development needs. The study period abroad must be part of the student's study programme to complete a degree at a short cycle, first cycle (Bachelor or equivalent), second cycle (Master or equivalent) and third or doctoral cycle"[2]. If VM will remain outside of the main study process, recognition requirement could be not so strict, selection could be done according to some other principles, then offered by the MILETUS project. NaUKMA is finding MILETUS mobility, by its content and format, suiting formal curricular more than informal, here we would concentrate on the ways mobility could possibly be included into the study programs of Bachelor or Master levels.

When finding proper place of VM in different university settings, it is highly valuable to consider the experience of other projects, which piloted virtual mobility models, collected the best examples of virtual mobility etc. Among the projects mentioned are UbiCamp, Open Virtual Mobility, EVOLVE, Erasmus+ Virtual Exchange, UNICollaboration[3], the list can be further extended. Some of these projects had as their main goal piloting VM per se (e.g. UbiCamp); others concentrated on describing VM competences and launching VM competences and skills trainings (e.g. Open Virtual Mobility); the very others were more concentrated on creating the platform for virtual mobility / virtual exchange, which could be used by the faculty members from different universities for virtual matching of classes or programs.

Among the recent studies of VM practices we should definitely mention "Innovative Models for Collaboration and Student Mobility in Europe" report[4]. The report is based on new developments in higher education and international collaboration collected by The European Association of Distance Teaching Universities[5] (EADTU)'s Task Force and Peer Learning Activity on Virtual Mobility. The report shows mobility schemes, related policies for international networking, as well as tools to organize innovative education and mobility formats.

EADTU is its effort to define VM and its main characteristics, mentions that VM "is different from distance education as virtual mobility is based on a contract between universities (to facilitate mobility) and not between a student and a university like distance education is. Therefore, it is an extended, mainstreamed offer by your own university with an international experience as the main goal." This confirms two major features of successful and integrated VM, which are:

- VM should be within the educational offer of a university, therefore should be inbuilt into university academic life both administratively and academically
- VM is always a collaboration of at least two universities, which have to agree, how mobility will be implemented, integrated into study process, recognised upon completion etc. at both (all) the institutions participating. EADTU report mentions, that this cooperation should be

[2] https://ec.europa.eu/programmes/erasmus-plus/sites/erasmusplus2/files/erasmus-plus-programme-guide-2019_en_1.pdf
[3] http://ubicamp.uniovi.es/inicio, https://www.openvirtualmobility.eu, https://evolve-erasmus.eu, https://europa.eu/youth/erasmusvirtual_en, https://www.unicollaboration.org
[4] https://eadtu.eu/documents/Innovative_Models_for_Collaboration_and_Student_Mobility_in_Europe.pdf
[5] https://eadtu.eu/about-eadtu/about-eadtu

> defined by an institutional agreement, which can be between two universities (e.g. in Erasmus exchange) or within a network or consortium (networked and joint learning activities or curricula). In other words, "from a university's perspective, mobility takes place when two or more universities organise and recognise study periods followed by their students in an exchange program or in a networked/joint program[6]."

EADTU report approaches VM from different perspectives, e.g. from the point of view of its duration; mobility can be synchronous and asynchronous; one-campus or multi-campus.

At the same time for further consideration of MILETUS model VM integration into the Bachelor or Master programs (particularities of PhD programs are discussed later), the following classification of the mobility could be of interest. VM can be organized as:

- Embedded mobility within a course - Exchange mobility for individual students (virtual Erasmus mobility)
- Networked mobility in networked curricula and courses with mobility windows
- Integrated mobility in joint curricula[7]

MILETUS experience most probably is not directly relevant for integrated mobility in joint curricula, though its format can easily be considered within first 3 setting. Please refer to chapter 3.3.3. on the NaUKMA experience of integrating MILETUS VM into the "Global Economy" and "Research Seminar" for the Master level students in Marketing. While integration VM into one course there are several issues, which should be carefully considered – if VM is part of the class, included in the course syllabus etc., then it should be open for all the students of the class. In this case there is no need to apply selection criteria, while selection procedure, offered by the MILETUS model, becomes not so much relevant; alternatively, if applicable, there should certain selection criteria for joining the course, which contains VM as its element. Additionally, it is very important to mention that this type of VM is closer to virtual exchange (VE), which is defined as "practice, supported by research, that consists of sustained, technology-enabled, people-to-people education programs or activities in which constructive communication and interaction takes place between individuals or groups who are geographically separated and/or from different cultural backgrounds, with the support of educators or facilitators" by EVOLVE project[8]. We already emphasized, VM mobility is definitely cooperation of at least two partner universities, therefore it is natural to expect, that if VM is embedded into a course at one institution, something similar should happen at the partner institution. In this case, taking MILETUS model, cooperation of two faculty members (e.g. co-teaching, co-supervising, splitting in supervising mixed groups, working on different topics etc.) is very much essential.

As for the two other models suitable for MILETUS VM practice, we are finding them rather similar with the difference in the main focus – this is either individual student, participating in mobility (virtual and real), who anyhow agrees LA according to his / her individual interests and preferences; or a program, curriculum, when two or more institutions agree on predefined list of courses, the students can take at partner university during the defined semester etc. This could happen, e.g.

[6] https://eadtu.eu/documents/Innovative_Models_for_Collaboration_and_Student_Mobility_in_Europe.pdf
[7] Henderikx, P. & Ubachs, G. (2012). General models for collaborative curricula and mobility. In: G. Ubachs (Ed.), Netcu. Handbook for organizing networked curricula. See: http://www.networkedcurricula.eu/sites/default/files/handbook/NetCu_Handbook_Final.pdf
De Moor, B. & Henderikx, P. (2013). International curricula and student mobility. Advice Paper, League of European Research Universities, LERU. See: https://www.leru.org/files/International-Curricula-and-Student- Mobility-Full-paper.pdf
[8] https://evolve-erasmus.eu/about-evolve/what-is-virtual-exchange/

when the institutions are running comparable programs and a student from one university wants to get special knowledge and skills, which are not available at home university, but relevant courses exist at partner university. In any case the main idea here is to offer students wider and more diverse academic offer, than the one, available at a single university. Variations of these models were already piloted on the national and international level within the projects, like already mentioned UbiCamp project or eAMK[9] project, aiming at elaboration of shared course offering for all Finnish universities of applied sciences, etc. If to apply MILETUS model to this scenario, it is possible to imagine, that 1) one university, e.g. due to its particular interest in equipping its own students with international experience, launches the course, which can be virtually taken by the students from partners' university(ies). In this case the course is supervised by the faculty member from this single university 2) two or more universities are opening VM offer (courses) for the students from partner university(ies), all these VM offers (courses) can be organized around problem-based learning approach, but have different topics, different type of problems on offer etc. Planning of introductory / tuning part of such course or courses is strongly recommended under this scenario, please see 3.1.3. for the details.

### 3.1.2. Preparation of faculty members for supervision of virtual mobility

As mentioned in the previous parts of this report, the role of teacher in the situation of VM supervision, especially when it is based on the PBL principle, differs greatly from the traditional didactics. Among the problems, some MILETUS supervisors were facing, was lack of training in supervising students' group work in general, even in the offline setting. This was multiplied by the virtual setting, when students were not in position to meet each other physically and it was much more difficult to launch group dynamics (please see section 2.4. of this publication). It is important to emphasize again that the MILETUS virtual mobility was based on the PBL scenario, where learning was concentrated on dialogue, communication, co-operation first of all among the students, facilitated by the faculty member. MILETUS VMR experience vividly demonstrated, that much more facilitation of group work is needed in virtual setting, than in the offline setting.

This leads us to the idea that if universities want to implement VM in any of the formats, mentioned in the paragraph 3.1.1., they should make efforts to prepare their teachers to properly work with the virtual groups of students.

Additional arguments in favour of proper preparation of teacher-VM supervisors:

- if virtual mobility is set in the format of two (or more) classes interaction, success of the class/course in one institution now equally depends on the professionalism of teacher at home and at partner institutions, as they interdepend on each other;
- in the framework of ''European policy experimentations in the fields of Education and Training led by high-level public authorities", EU recently initiated creation of a European-wide hub for "online learning, blended/virtual mobility, virtual campuses and the collaborative exchange of best practices. This hub should enhance online course/curriculum collaboration and virtual mobility in Europe"[10]. One of the first tasks, defined by the project, is "Trainings for academic staff on innovative pedagogies and curriculum design; spaces for

[9] https://www.eamk.fi/fi/etusivu/

[10] https://ec.europa.eu/education/education-in-the-eu/european-education-area/digital-education-action-plan-action-4-higher-education-hub_en

discussions/for where teachers could exchange material and best practices and advertise training opportunities".

It is possible to assume that the teachers' skills in supervising international VM run could be based on their university policies of usage innovative educational formats. In other words, if a university encourages and trains its faculty members to use simulations, gaming, virtual labs, many of which are available as open sources; if teachers practice these or other tools and formats in home university setting, it would be much easier for them to adjust to the VM setting both from the pedagogical and IT facilitation point of view. Additionally, if a university has learning management system(s) (LMS) in place, which is (are) familiar and used by faculty (and students) (e.g. Moodle, Canvas etc.), this LMS could be a good platform for launching VM international initiatives, international online networking in principle. Additionally, LMS systems, used on a daily basis, introduce faculty members to virtual communication with their students already at home, which is definitely very favourable scenario for launching VM initiatives.

Each university can develop their own program of training faculty members for working in the VM environment, though it could be good idea to check achievements of recent projects, particularly concentrating on the issue of teachers'/tutors' work in the virtual setting. We would mention here Open Virtual Mobility project[11], which analysed and defined basic skills and competences for all the VM stakeholders, including, definitely, teachers. The project also developed MOOC[12] , which trains VM skills and competences (faculty members can take either the whole course or look at its particular topics after checking their skills by Open Virtual Mobility self-assessment tool[13], also prepared by the project), as well offers links to other VM training resources. It is important to mention, that most of the skills, required for successful participation, supervision or administration of VM, defined by this project, are similar to topics of the students' pre-mobility trainings / video lectures, prepared by the MILETUS project. Thus, Open Virtual Mobility project is speaking about such skills and competences, important for implementation / supervision / participation in VM as *Collaborative learning, Autonomy-driven learning, Networked learning, Media and digital literacy, Active Self-regulated learning, Open mindedness, VM knowledge* etc. MILETUS project made more emphasis on pre-training the students, while training faculty ton similar topics turned to be of equal importance.

### 3.1.3. Preparation of students for participation in virtual mobility: intercultural, research methodology, technological skills training

Recognising the need to prepare students from different countries, diverse academic setting and different fields, MILETUS project prepared pre-mobility trainings in research methodology and basics internationalization in the form of video course. At the same time piloting of MILETUS VMRs confirmed, that participating students should preferably be trained also in the set of other skills. Here we can refer again to the experience of the Open Virtual Mobility project. Eight VM skill sets, recognised by the project,[14] are:

- Media and Digital Literacy
- Intercultural Skills
- Networked Learning

[11] https://www.openvirtualmobility.eu
[12] https://hub.openvirtualmobility.eu/course/index.php?categoryid=8
[13] https://hub.openvirtualmobility.eu/course/index.php?categoryid=8
[14] https://www.openvirtualmobility.eu/open-credentials/440-open-credentials/

- Open Mindedness
- Virtual Mobility Knowledge
- Autonomy-driven Learning
- Collaborative Learning
- Self-Regulated Learning

Somebody can argue, that this is the same skills list, already mentioned for teachers-supervisors of VM. Here it is possible to remind Open Virtual Mobility project's concept, when all stakeholders of VM should be comparably prepared and tuned to collaborate in the virtual setting. As the project courses are developed on different levels, it can be offered that teacher should go through advanced training, while the students should have at least basic skills in all the topics mentioned.

Similarly, to teachers' case, we could assume, that the more students are exposed to innovative teaching and learning practices; the more they use LMS system(s) at their home universities; if education is in general based on knowledge creation, project and / or problem-based learning, there are more chances, the would be better prepared for VM and would easier adjust to VM situation.

### 3.1.4. Integration of virtual and blended mobility of PhD students at the institutional level

Embedding of various formats of blended mobility of PhD students might not require additional regulations at the institutional level considering the individual design and planning of both study and research for each PhD student. In addition to a regular program of studies developed by home university, the results of participation in blended mobility can be included either in the yearly transcript of records or in the regular report for research work of the PhD students. The departments who are responsible for supervising and research work of PhD students and doctoral school (or a unit responsible for PhD studies) determine the number of ECTS PhD students will receive basing on the evaluation of the results of virtual and blended mobility in process of regular yearly reporting of the PhD students.

Partner universities can preliminary agree the list of competences, expected learning outcomes of the courses or learning /research opportunities, the assessment procedures as well as quality assurance mechanisms and recognition of the gained ECTS in their network agreement.

### 3.1.5. Elaboration of the recommended formats of virtual and blended mobility of PhD students

In blended mobility PhD students can be engaged in:

- collaborative work on the structured literature review;
- designing special short-term interdisciplinary projects;
- preparing co-authored publications and conference papers;
- trainings in using unique appliances and software;
- co-teaching and peer-review of teaching;
- peer-led learning activities including research topic presentation and discussion, methods seminars, trainings in transferrable skills; collaborative assignments; self-guided seminars;
- language training;
- writing sessions;
- intercultural learning;
- training in digital literacy;
- regular courses from lower level of studies (master or bachelor programs).

In terms of balancing between face to face, blended and online collaboration between PhD student, co-supervisors and PhD learners' community the most efficient design of the learning experience should be determined individually.

Education at PhD level and further academic career requires highly developed skills of active self-regulation, autonomy-driven and collaborative learning. Introducing virtual and blended mobility could be considered as effective activity for stimulating networking and interaction and developing active learning skills for continuing professional development.

Academic and educators working with PhD students also can benefit from virtual and blended mobility in terms of expanded networking for international collaboration and implementation of innovative pedagogical strategies.

### 3.1.6. Integration of virtual and blended mobility of PhD students into individual study and research plan of PhD students at home university

Participating in blended mobility PhD students get a lot of opportunities to integrate international learning and research experience in their research profile that enhance their academic career opportunities. But careful consideration and planning of this type of academic experience will increase the quality and potential results:

- together with supervisor the PhD student should review both individual study and research plan to make sure the requirements of home university are fulfilled;
- selection of the courses and the terms of recognition should be agreed with supervisor and department before the mobility;
- collaboration with an open research group will lead to the new vision of the methods and tools for research; plus learning groups, created in the framework of virtual mobility, might develop the projects stepping out of the core research, and both PhD student and his/her supervisor should be aware of this unpredictable effect of international experience and plan the core research accordingly;
- a supervisor and a PhD student should agree on the evaluation procedure and individual reporting on the results of blended and virtual mobility;

The learning resources as well as digital platforms or software developed for virtual and blended mobility can be further used as introductory or educational materials for face to face courses by each partner university and stimulate PhD curriculum development.

### 3.1.7. Models of co-supervising of virtual and blended mobility of PhD students by home and hosting universities

The partner universities can preliminary agree on whether the co-supervising experiences in blended mobility should be formalized by home and hosting university in accordance with their institutional procedures.

Not only PhD students should be selected and well-prepared for virtual and blended mobility, but also supervisors need to be selected according to the criteria of good subject knowledge and expertise, participation in current research projects, advanced language and digital skills in order to equip to and effectively evaluate the PhD student's studies and research.

The administration units are responsible for establishing supervision arrangements with clear responsibilities for each individual co-supervisor. The partner universities should set up the

framework for constructive communication and interaction between supervisors at home and hosting universities to avoid potential conflicts.

The procedures for approval of research activities, publications and participation in conferences and seminars, intellectual property arrangements for PhD students and their supervisors should be agreed and clarified before the start of mobility.

Supervisors from home and host universities should prepare and submit a report on the PhD student's overall progress after their mobility.

### 3.1.8. Induction trainings for academic staff and PhD students participating in blended mobility of PhD students

In the process of admission, PhD students should confirm the proper level of foreign language and digital skills and demonstrate willingness to improve proficiency in skills required for the effective virtual experience such as:

- networking;
- intercultural skills;
- self-regulation and autonomy;
- team work.

Virtual mobility programs are still new both for PhD students and for academic staff. Administration of universities should put efforts in organising trainings and seminars on best practices and challenges of teaching and learning in a virtual environment.

### 3.1.9. Exchange of best practices, instructional strategies and assessment model of blended mobility of PhD students

When starting collaboration in virtual and blended mobility, the university should arrange the opportunities and digital platforms for a regular exchange of best teaching and learning practices; the results of collaborative projects; communications and regulations.

PhD students participating in virtual and blended mobility can contribute to the programs of continuous professional development of academic staff and peer-led learning events for their PhD study programs enriching the experience and expertise in research and collaboration.

The public reporting and presentation of the results of the collaborative research project will contribute to creating new academic experience and internationalization.

### 3.1.10. Recognition of PhD students' blended mobility results at home university

The organisational activity within the mobility programme involves building up a coordinated management mechanism in accordance with the goals and objectives set. The foundation of the mechanism is a certain theoretical and methodological basis. The first is intended to provide solutions to strategic issues of mobility programs, taking into account both the current state and the perspective of the subjects involved. The latter should take over the instrumental function of programme support.

**Best practice example**

*The experience of the MILETUS mobility programs implementation shows how important it is to harmonize long-term and current goals of the programs with the basic principles and strategic plans of a participating University. The existing Development Concept of Private higher educational institution Kharkiv University of Humanities "Peoples Ukrainian Academy (PHEI KUH PUA) until the year 2035 includes strategy lines for organizing mobility of all categories of students, which ensures prompt involvement in projects of any mobility type.*

### 3.1.11. Theoretical and methodological support of the virtual and blended mobility programmes

The methodological support for students/post-graduate students' education and research was specially developed and designed by University teachers, written or recorded and placed at the Moodle online platform, in the form of separate lectures or training courses. The methodological support also includes research assignments for group work and tests to control students' progress.

The theoretical and methodological support of the MILETUS mobility programmes is aiming at achieving the project goals and objectives . They were supposed to ensure the effective fulfillment of the programme tasks and activities.

Within the framework of the MILETUS project, students and post-graduate students learned to work in international teams on research projects, to conduct collaborative research, to write common articles, etc. The teachers' role was to facilitate and supervise the group work of international students and post-graduates: setting current tasks, arranging and moderating the online communication, providing assistance if necessary, monitoring the results.

The systematization of the organizational features of all stages and types of mobility highlighted their certain similarities and differences. Further details are presented below:

*Students mobility*. Each international student group working on the research project included 3-4 students. The experience of the project proved that consistency and quality of communication between the teacher and the supervised group, as well as between the members of the group are key factors for success in attaining the objectives of the students' project.

At the very beginning of the work, organizational steps such as the familiarization of the participating students with the criteria of the current and final assessment of their work turned out to be fundamentally important. That is, students should have a clear idea of what activities and how they will be evaluated. The experience of our participation in the project convinces us that this information provided at the initial stage reduces dropouts during the project and increases active participation and personal initiative. Particular attention at the organizational stage must be drawn to the importance of teamwork as a necessary condition for obtaining high scores for doing the project. In our opinion, group supervisors should monitor and evaluate frequency, duration and content of group discussions, as well as the level of involvement and individual contribution of the team members. In this case, as the evaluation criteria for students' work and its measurable outcomes, may be suggested the following: frequency of online meetings and the level of individual involvement in them; frequency and the level of individual involvement in online consultations with the group supervisor; leadership initiative and the quality of its implementation; the quality of individual performance in the assigned team roles, etc.

The experience of implementation of MILETUS project allows us to identify a number of organizational issues, which, as the results of other virtual mobility projects show [Osipova 2015; Seminova] should be considered typical:

1) *Lack of experience* in this type of collaboration among students and curator's majority, which led to confusion in performing certain tasks and violation of deadlines, etc.

2) Not always *sufficient level of information and communication* technology skills, which obstructed establishing timely communication sessions with group members. In some cases, students simply "disappeared", completely ignoring any attempts to get in touch with them, which ultimately led to a significant drop-out of registered project participants.

3) *Problems of self-organization*. In the context of modern mobility programs, students are required to be able to plan their own activity, its mode and pace. However, given the traditions of Ukrainian Higher Education, where the practice of paternalism is still predominating, the above-mentioned skills are rarely in demand, as a result, far from being formed. Therefore, organizationally, taking these features into account in mobility programs is important.

4) *Difficulties in establishing communication* and productive dialogue within student groups, in integrating group members into a team, in other words, difficulties in team-building. As the final project meetings showed, in some cases the attempts to make students feel and work as a part of their team failed. Some groups turned out to be atomized, their members worked individually with the supervising teacher who had to distribute roles and tasks himself, initiate online meetings and whole communication.

5) *Unclear guidance* at the start of the project also seems to be a problem, it could lead to a significant decrease in student motivation. Not all of them were motivated enough to do virtual courses, conduct research, prepare an article/report on the basis of research results and complete the project successfully.

6) *Organizational problems* include the overlap of deadlines for the mobility programme tasks and scheduled reports and checks at the "home" university.

Nevertheless, in the course of project implementation all problematic issues were resolved, invaluable experience was gained and working practices for organizing this kind of work for further projects were found.

*Mobility of post-graduate students.* With regard to post-graduate students' mobility, in most cases it was possible to arrange and ensure group work more efficiently, still not always. Likely causes for group work failures, which can be considered as overcomeable barriers for academic mobility development, are: the schedule and curriculum of post-graduate training which made it difficult to arrange a group meeting, a large number of part-time post-graduate students in Ukrainian universities whose main job is often unrelated to education or science. An important factor was post-graduate students' experience, determined by the year of their training and/or the level of involvement in international/national projects of the kind earlier. These factors determine not only how successfully research tasks are performed but also how efficient communication, organization and planning can be, how autonomously a post-graduate student can work.

As shown by the off-line final project meetings of post-graduate students and their supervisors, team work was quite successful at this stage, even though the informative aspects of this work were

much more complex and required higher level of coordination than when dealing with student mobility. Each post-graduate student was working on the topic not only their dissertation research, but also common research topics, sometimes from the other subject area, contributing interdisciplinary to the research topic. Each PhD student was interested in the topic and in conducting the research to the best of their abilities. In this session, both the project coordinators and the supervisors and the post-graduate participants in particular worked fruitfully and in a full harmony. The cooperation resulted in quite interesting interdisciplinary researches at the intersection of linguistics; sociology, economics and engineering, or pedagogy and sociology, or microbiology and economics, etc. However, not enough was done to make these interesting findings public, the research carried out was very educational for the groups, was reflected in their dissertational thesis, certainly, enriched the teachers-curators. However, its potential was not fully used to promote the mobility project in universities.

At the blended stage of post-graduate mobility, organizational problems if occurred were minor as motivation of post-graduate students was really high: gaining experience in another country, the opportunity to communicate and collaborate with foreign colleagues, access to a foreign university's resource bases; chance to expand empirical base of their dissertations, prospects of comparative analysis; thirdly, publication of a scientific article in a foreign edition, – this is not a complete list of prospects, very attractive for any post-graduate student: Moreover, one cannot ignore the fact that post-graduate students are more experienced and socially responsible. All the above-mentioned was a powerful development factor and a trigger accelerating post-graduate students' motivation to participate in the project, take interest in solving challenging tasks and achieving their key goal.

The main block of problems of post-graduate students' mobility was related to organization and substantive content of the program of post-graduate students' stay in foreign universities. The supervisor and host university had to organize an intense program for their post-graduate guests. Mostly, it worked out well. For example, a post-graduate student from Serbia, who conducted research at PHEI KUH PUA, not only participated in an international conference, but also attended classes at the faculty of postgraduate education, English-speaking conversation clubs, got acquainted with Ukrainian experience of "inclusive education" in secondary schools, participated in a number of cultural events at the university, etc. The events perfectly matched his professional and research interest (pedagogy).

However, it was not always the case, the blended stage of post-graduate mobility was not that intense and meaningful for everyone, especially if participants faced a language problem: in many host universities, lectures are regularly given in the state language, and rarely in English. Due to this barrier, post-graduate students from Ukraine could not attend all classes which interested them, because they could not understand Serbian at a sufficient level.

It should be said that at different stages of mobility programs we can trace and identify general organizational issues. These are, first of all, communication issues. At the virtual stages of mobility, communication was carried out by e-mail correspondence, instant messengers and social networks. In addition, mandatory online consultations and discussions were scheduled and periodically conducted using Skype and/or other means of video communication. The result of this work is a group report prepared by students/post-graduate students (in the form of a scientific article) presenting data obtained in the study.

It should be noted that the main organizational work in the project was assigned to the project coordinators, as well as to the teachers-supervisors who facilitated the work of international under- and post-graduate groups. Administration of a mobility project, as experience has shown, is the pivot of all activities as it provides conditions for successful documentary, organizational, financial, scientific support for mobility. High-quality administration involves coordination of several organizational structures, their types, forms and terms of work.

The experience of implementing MILETUS mobility programs has also demonstrated the presence of common problem areas.

Firstly, the lack of group/team work skills. The message has been understood by participating universities and this area of training is a priority for Ukrainian universities, new disciplines have appeared and project work implementation considerably expanded.

Secondly, inequality of English language proficiency, both among students and post-graduate students, as well as their teachers-curators. Therefore, universities that have chosen virtual and real academic mobility as their priority have intensified their work on developing English-language courses and are more and more switching to conducting classes in English.

It is really important that mobility projects give the participants experience of self-organization, teamwork, professional communication in the international context, critical feedback on their research. Mobility programs have demonstrated their positive impact on students, post-graduate students, teachers, and administrative staff. They have contributed to internationalization of education and diversified its forms, laid the foundation for promising work in this direction, the instruments of which can be strengthened through meetings of mobility programs participants in a “home” university; meetings with future participants; thorough analysis of positive and negative participation outcomes with the goal of improving existing practices.

## 3.2 Challenges for MILETUS mobility programmes

In this section, we present the challenges emerged during the Mobility Runs performed in the MILETUS project, and the lessons learnt from these experiences.

### 3.2.1 Challenges in the preparation and implementation of VMRs from the point of view of students and teachers and lessons learnt

In this section we present the challenges emerged from the questionnaires in both the Virtual Mobility Runs (VMRs). We close the section with some lessons learnt for future VMR.

The results presented here are based on the data collected through a questionnaire that was distributed among students and teachers that participated to the VMRs, i.e. master students, teaching staff from EU partners and teaching staff from TURIL and Serbia. The respondents were 12 students (less than 1/3 of the participating students), 3 responses from EU partners (one per each EU partner institution – no more than one responses allowed by Moodle platform per institution) and 6 teachers from home universities. Notably, for all the students it was the first virtual mobility run experience, for 2 out of 3 supervisors it was the first experience of virtual mobility while for 5 out of 6 teachers from home country it was the first time they participate in a virtual mobility.

It should be noted that on average the students and the teachers are overall satisfied with the quality of teaching and the organization of the VMRs.

As for the organizational elements, i.e. the preparation phase, students and teachers agreed that objectives were clearly communicated; the selection procedure was clear and satisfactory in terms of communication and transparency. Moreover, the support provided through the Moodle platform was adequate as well as the interaction with virtual mobility coordinator.

However, in the first VMR, some issues to which take more attention emerged in the realms of time frame and duration of the VMR and the support from home university. Indeed, the first VMR was placed in a coincidence with the exam session, and half of the students claimed that 4 weeks was a too short period for the VMR, given the amount of work. Moreover, students, given the novelty of the experience, require a strong support from the home institutions. Given these suggestions, in the preparation of the second VMR, special attention was paid to the timing of it (the duration was fixed) and to provide more and better organized support from the home institutions.

As for the duration, it was not possible to modify it due to project constraints.

As for the implementation phase, in both VMRs, overall students and teachers are satisfied with the experience and believe is of value. Moreover, both categories claim that it can be useful for their professional life and practice.

However, contrasting opinions emerged in the evaluation of the virtual sessions, student-student and student-teacher interactions. Some had very positive experience, others question the effectiveness of the virtual sessions, by noting that in these sessions it was difficult to share and explain properly ideas, highlighting the difficulties in assigning the right value to the contribution of all team members during the project work or in receiving encouragement from the other team mates.

### Lessons learnt

The experience in MILETUS with the two VMRs provide us with the possibility to share some lessons learnt. These came from both the positive experience we did, as well as from the weak points emerged.

Overall:

- Students and teachers are interested and open to experience VMRs.
- Students perceive the potential for their professional life of taking parts into these type of experiences, to enrich their CVs.

#### ✓ Organizational issues:

- It is important for both students and teachers to clearly state and declare the objective of the VMRs.
- Selection procedure should be clear and transparent.
- It is important to rely on a stable, clear and well-organized IT-platform for sharing materials (e.g. Moodle).
- The role of the home institution in supporting the organization of the VRM and in supporting the students is fundamental: when the support is missing, students might feel lost and lose interest in the experience.
- The workload of a VMR is comparable to the one of an on-campus project, so duration of the VMR should be defined accordingly.

- The timing of the VMR should be defined considering the other institutional activities that the students have to perform.

✓ **Implementation issues:**

- Particular attention should be paid to the design of learning materials. Specific training should be developed for teachers on how to design learning materials, or specialized companies should be involved.
- Teachers should pay attention in managing the virtual sessions to ensure students interaction and involvement. Specific training should be developed for teachers and students on how to manage and interact in virtual classrooms, and they should attend these trainings before taking part to the virtual mobility.

### 3.2.2 Challenges in the preparation and implementation of PhD blended mobility and lessons learnt (recommendations)

In this section we would like to present the challenges encountered during the preparation and implementation of the PhD blended mobility. As we already all know, encouraging mobility within doctoral programs should be a key element to the development of any international strategy. Universities are encouraged to enhance their efforts to support mobility at doctoral level within the framework of inter-institutional collaboration as an element of their broader international strategy.

International mobility, including transsectoral and transdisciplinary mobility should be recognized as having an added value for the career development of early stage researchers. Putting those principles into practice, however, represents the main challenge for both the sending and the host university due to the heterogeneity of PhD programs and credit acquisition during the mobility. Moreover, the initial challenge lies on the diversity of doctoral program structures which reflects the increasingly diversity of the European Higher Education landscape in which higher education institutions have the autonomy to develop their own missions and profiles and thus their own priorities in terms of programs and research priorities.

Another main challenge during the implementation of the PhD blended mobility is to guide the partners' universities in using the instruments considered to be facilitating the mobility of the selected candidates with the main objective of making the mobility take place with no delays on the set timeline.

Furthermore, legal, administrative and social obstacles, for example concerning visas and social security issues must be addressed by all partners in the process.

**Lessons learnt (recommendations)**

We could only base our recommendations on the lesson learnt by the actual mobility experience.

We collected data through a questionnaire that was distributed among students that participated to the PhD blended mobility, 17 full time PhD candidates coming from MILETUS' Universities partners in TURIL and Serbia. The respondents were 11 candidates and the questionnaires were anonymous. Notably, not for all the students, was the first mobility within some Higher Education programs to which they took part.

On average the candidates were overall satisfied with the quality of teaching and the organization of the PhD blended mobility.

As for the organizational elements, i.e. the preparation phase, candidates agreed that objectives were clearly communicated: most of them recognized their objectives such as broadening their research experience and networking opportunities as well as finding the possibility of improving research collaborations. Many of them did not highlight any problems during the organizational phase. Moreover, the support provided by the home and the host institution was satisfactory.

Many of them highlighted the added value of organizing a virtual phase before the real mobility took place. Most of them found the duration of the mobility adequate and not too short.

The interaction with the host supervisors was evaluated highly positive by all the respondent candidates and all of them were adequately satisfied with the support given by the hosting supervisors, the interaction with the research group and the broader research community at the department/faculty level was indeed highly appreciated.

One third of the respondents pointed out that cultural exchange and mingling with the international community at the host institution was one of the most positive experience during their visit.

As for the implementation phase, all respondent candidates agreed that all mobility objectives were met and the experience overall was useful to broaden their methodological skills. Assistance and welcoming was evaluated positively by all candidates and the involvement and integration with the community was in line with the expectations.

No contrasting opinions emerged in the evaluation of the experience. All respondents had a positive experience of the blended mobility and all its phases, taking the experience to be evaluated the best among the mobility programs within MILETUS.

The experience in MILETUS with the PhD blended mobility provide us with the possibility to develop some recommendations listed below:

### ✓ Setting the ground for Blended Mobility

Both host and home universities, to assure the best matching between research fields, should find proper partners.

Partners should agree on a memorandum to be signed by both parties to clarify the objectives and content of the collaboration.

The blended mobility should bring to measurable outputs, e.g. publications, to make it more interesting for both home and host universities to take part to it.

A responsible (a single person or a committee) for blended mobility programs should be defined in both home and host universities.

Funding can be obtained at EU level or at country level with well-supported applications.

### ✓ Organisation of the Blended Mobility

The blended mobility should be divided into 5 phases:

1. An initial kick-off meeting face-to-face
2. A virtual mobility phase
3. A real mobility phase

4. A virtual mobility phase
5. Submission of the output and evaluation of the experience

Each phase has a different aim:

The initial kick-off meeting is a face-to-face moment where PhD students and supervisors meet:

- To get to know each other
- to define and clarify the general objective of the activities within blended mobility
- to discuss the content and methodologies of the research activities to be carried out during the blended mobility
- to define the schedule of the activities to be performed in the blended mobility
- to set up the groups of PhD students (when applicable) that are going to work together.

The first virtual mobility phase is aimed at preparing the real mobility. These are the aims of this phase:

- Define in details the aim and the methodology of the research work
- (If students are going to work on topics or methodologies that are new to them), they can use the time to get to know the topic and the methodology.
- Attend on-line courses in line with the research activities they are going to perform

The real mobility phase is aimed at developing the research work. Given that PhD students are "far away" from their home university duties, they can exploit the time to really focus on the research activity. Moreover, in the phase, they can fully exploit the possibility to be close to the supervisor, to access the libraries of the hosting university and any other opportunity the hosting university is offering.

- The second virtual mobility phase is aimed at, eventually, closing up the research activities and, for the students, to do some follow-ups with the supervisor.
- The final phase encompasses the submission of the output of the mobility (i.e. a conference or a journal paper) and the evaluation of the experience by both the PhD student and the supervisor. The responsible for blended mobility in both institutions should be able to access the evaluation of the experience to define possible action plans.

Each phase might have a different duration (flexibility). The duration of each phase might depend on the content of the work to be performed by the students, as well as the novelty and interdisciplinary level of the work.

The kick-off phase should last around 1 week.

### ✓ Administrative part of the Blended Mobility

Hosting universities need to clarify and communicate appropriately the status of blended mobility students in their institution. The blended mobility students should be able to be included into the university ecosystem for the period of their mobility.

Hosting university should devote resources to assure the integration of blended mobility students into the university life, in terms of research, social and cultural life.

Both home and host institutions should agree on the procedure for managing the PhD student mobility.

Both home and host institution should organize so to have proper administrative support for PhD students.

✓ **Communication and network development of the Blended Mobility**

The possibilities for blended mobility should be properly communicated in advance to both students and academics.

The objectives, contents and benefits of blended mobility should be properly communicated also to home institution supervisors, so that they can involve and support their PhD students

A network of PhD students and supervisors that took part to blended mobility programs is advisable. The network can constitute a platform for sharing experience, knowledge, and best practice.

After returning to their home universities, PhD students and academics should be encouraged to participate in the network to help new participants prepare for their mobility.

## 3.3 Integration of virtual mobility in the study process

### 3.3.1. University context for integrating mobility into the study process

Today's university education, oriented on equipping students with pre-defined set of skills and competences, requires new approaches to organization of the study process. More and more universities around the world realize, that this skills set should include, among others, students' and university graduates' ability to compete on international job market; to be flexible in the globalized world with already pre-defined setting of free movement of people and ideas. Academic mobility contributes greatly to obtaining these skills set, which include, but is not limited to intercultural communication competence, ability to perception and adaptation to business cultures of different countries; critical approach to cultural stereotypes' language proficiency; teamwork in international group, etc.

### 3.3.2. Particularities and possibilities of virtual mobility in the university study process

Virtual mobility (VM) cannot fully substitute physical mobility due to the important first-hand personals and cultural exposition to different place and setting as valuable component of real mobility. At the same time, VM creates necessary preconditions for students' introduction to various educational settings. VM is a form of interaction between universities on the junction of e-learning and international cooperation.

The main benefits of VM (learning) are:

- possibility of students' individual trajectory of learning;
- less limitations in the numbers of mobility participants, in comparison with real mobility;
- no need for physical movement, which saves funds, time and environment (e.g. $CO_2$ emissions, related to each travel);
- experience of working in international and mostly interdisciplinary teams and / or under the supervision of international professor without leaving home;
- possibility to simultaneously experience and compare educational setting of different institutions and countries.

Important advantage of VM is its accessibility for students with special needs, parenting students, employed students etc., who have no possibility for real travel.

### 3.3.3. MILETUS project experience on inclusion of VM into the study process

However, with all its advantages, VM required thoughtful preparation both from the side of a university, involved into VM, and of participating students themselves. Thus, university should choose and, if appropriate, agree with its international partner, involved into the VM project, appropriate software and technical solution; university should take care about quality assurance measures; take into account intercultural aspects and preparation of faculty member, if involved, to virtually facilitate group of international students. Simultaneously students should get basic intercultural communication skills; appropriate digital skills; be introduced to the appropriate research methods, if they are supposed to work on certain research topic together with their peers abroad. One of the most important university tasks, though, is integration of VM into the study process.

Conducting, within MILETUS project, two rounds of VM, with participation of NaUKMA Master's students in Marketing gave the opportunity to experience all the benefits and possible challenges of VM as part of the regular educational process.

**Best practice example (integration of virtual mobility runs into the study process)**

***1st MILETUS virtual mobility run*** *(VMR) involved first year Master's students in Marketing.*
*The students participated in the VMR during the NaUKMA summer term of academic year 2017/2018. VMR was integrated in to the mandatory course "Global Economy". Successful participation in VMR substituted preparation of the projected, required by the course. Upon completion of VMR and the course the students, participated in the VMR received 3 ECTS credits. In addition to working in a project team led by a mentor from one of the EU universities – participants of the MILETUS projects, NaUKMA students were expected to present their work to the other students of the NaUKMA "Global Economy" course students, not participating in the VMR or participating in different teams.*

***2nd MILETUS virtual mobility run*** *took place in the fall term of the academic year 2018/2019. Similarly, Master's students in Marketing joint 2nd VMR. Now VMR was integrated in the Master Thesis Seminar (3 ECTS credits), which aims at training students in applying research methods in their own projects. Successful completion of the 2nd VMR run was recognized as one of the course tasks; additionally, students, participated in the 2nd VMR run, shared their experience on working in international multidisciplinary team with the classmates; they also prepared publication proposals, based on the results of their projects within VMR. Some of the students later developed their 2nd VMR projects into the year project, which is usually the first stage of the Master thesis. Participation of Master Thesis Seminar students in the 2nd VMR also led to introduction of group research projects implementation principles as the new course topic.*

*In both of the VMR case and their integration into the regular course possible learning outcomes and skills, the students would get after participation in the VMR were found comparable to those, planned within the courses. This was the main factor, which made it possible to include VMR as part of the course for some of the course students.*

MILETUS VMR had also additional impact and development into the student process at NaUKMA:

- enhancing further NaUKMA students group work on joint projects within their course-work
- further structuring usage of project and problem based learning methods in the NaUKMA study process
- introduction of the new Master level interdisciplinary course on "Public Speaking and Knowledge Sharing". The idea of the course raised as a result of the VMR, integrated into the course work, where presentations of the project work was one of the requirements. The idea was prepared during the discussion with the employers, who supported the presentation skill as an important one for the work in many companies. If VM will be continued in any format at NaUKMA, this course could be an advised introduction, which could facilitate the mobility. The course will have at least 3 ECTS credits.

### 3.3.4. Challenges of integration of VM into the study process

During implementing VMRs and integrating them into the study process, NaUKMA faced certain challenges. All of them should be considered while planning future VM initiatives, which are part of the regular study process:

- timing – VM should fit into the university (or all participating universities, as usually more than one is involved) academic calendar;
- it should be decided, if all the course / module students should be involved into VM or only part of the group – the last creates certain difficulties in organization of the course, as the faculty members should work with 2 separate streams within the same course;
- if VM is part of the course or a separate course itself, format of the mobility, its topic, learning outcomes, added value etc. should be well discussed and agreed by all the universities involved; learning outcomes if VM should correspond to the expected learning outcomes of the learning block (e.g. course, module) they are part of at each of the universities and measurable;
- university programs / courses should carefully consider the interdisciplinary nature of VM, e.g. how much students from different fields should work jointly in the VMR, what kind of benefits this joint activity will bring and if there is appropriate scenario and skills in place to facilitate this interdisciplinary;
- faculty members, involved into the VM supervision should be trained to facilitate distant / online group work;
- university / universities, implementing VM, should carefully agree on the usage of the LMS (Learning Management System) to support VM and to train both faculty and students to use this LMS. It would be much preferable, if possible, that LMS, which universities are using to support “usual” study process would be used also for the VM facilitation to generate less stress both for the teachers and students;
- university / universities should preferable have their “usual” study process well oriented on project and / or problem based learning, with appropriate PBL skills of teachers and students, if VM is envisaged in a format distant / online project work implementation;
- university / universities, planning VM, should clearly understand, what they want to do and why – either VM would have a format of virtual exchange within existing

courses / modules at each of the partner universities. Under this format the students of at least 2 universities are synchronically involved and interact within virtual / online project; virtual project is coordinated jointly by the faculty members from both universities (or more, if more than 2 universities are involved). Alternatively VM should rather be implemented in the format of "pure" virtual mobility, when a student from one university is virtually taking a course / is involved into the project at another university, without pedagogical involvement of his/her home university, and is getting ECTS credits from this other university[15]. These two approaches anticipate different academic and logistical arrangements.

# 4 Methodological recommendations for all actors in virtual/blended mobility

## 4.1. List of methodological recommendations

After almost three years of the project life span and after completed two virtual mobility runs and one blended mobility run the MILETUS team can propose some recommendations for all actors in the virtual or blended mobility run. The list of recommendations is categorized in 4 groups and they are presented below.

The following methodological recommendations for guiding virtual students' mobility runs can be summarized:

*To create, sustain and continually upgrade a functional network of academic and administrative coordinators at University/Faculty/Departmental level who support, together with the central International Relations Office, mobile candidates applying for the Erasmus+ or other mobility grants (in both directions), including virtual mobility run.*

*To develop and upgrade a set of Regulations that deal with the process of recognition, to ensure that mobility periods and students' results are processed according to the same standards across the Europe (or globally) and with respect of the principles of the ECHE.*

*To continually develop course catalogues of subjects and modules that can be taught in English (and other foreign languages) at the level of University and gather/publish all of them at the institutional website before the start of the academic year for all types of motilities including VM.*

*To delegate a mobility officer in charge of promotion of all mobility programmes and activities. The mobility officer at the central level (together with IROs at faculty level), buddy network, as well as former mobile students, should organize a series of promotional events of VM possibilities.*

*To constantly advertise mobility programs on all social media (most widely used by the target group - students) and additionally, via e-mails one month before a call for application opens. Teaching staff should also encourage students directly to take part in mobility experience, as well.*

*To introduce a 'virtual buddy' network to help students cope with the challenges of virtual environment more easily.*

[15] Check the definitions of virtual exchange and virtual mobility, proposed by the EVOLVE (Evidence-Validated Online Learning through Virtual Exchange) Erasmus+ KA 3 Project https://evolve-erasmus.eu/about-evolve/what-is-virtual-exchange/

The following recommendations for organizing and maintaining the process of internationalization through facilitation of various students' mobility initiatives can be summarized:

*It is necessary to select programme managers who support international collaboration around structured mobility schemes*

*Remove existing barriers related to degree recognition and rules that hamper international curricula*

*The social dimension of mobility should be ensured, giving students equal access to mobility, including the portability of grants and loans across the European Higher Education Area*

*National qualification frameworks should take into account international programme collaboration and mobility*

*To integrate the project based virtual mobility programmes to existing mobility programmes as a complement to traditional mobility programmes*

The following recommendations for initiating future programs on a national / regional / international level can be summarized:

*To create similar programme in education sector (in ERASMUS+ or similar programme) such as ERA Chair programme within Horizon 2020 in research*

*To make shared facility in education as some kind of 'education hubs'*

*To provide dual and joint degree realization and recognition*

*To make flexible study programmes which can respond to how the students want to learn (e.g. choosing when and where they learn, collaborative learning, using learning tools such as game-based processes, etc.).*

*To provide institution-wide strategic thinking on the possible future of ICT and its likely benefits for internationalisation and carefully weigh the benefits and risks.*

*To open branch campuses overseas*

*To introduce online or blended specialist courses and trainings within HEIs, or preferably as international joint programs by several partner HEIs that would be accredited*

*To design and develop programs that would serve to standardize knowledge, skills and competences among various industry professionals and practitioners and issue certificates which would hopefully gain international recognition and value*

The following recommendations for better preparation and adaptation to international students' mobility runs can be summarized:

*To organize summer schools and other networking events by students as a preparation for future mobility ran*

*To provide continual promotion of VM through social networks like Facebook page, local media, national and international education fairs*

*To create on-line promotional videos for international students*

*To create Factsheets and guidelines for incoming mobility*

*To include international students in on-going student events (academic, cultural, sports)*

*To organize events aimed at foreign students presenting their own country and cultural background*

*To establish students' forums and discussions, preferably moderated ones, for as broad international network of students as possible, enabling students to share their views, ideas, knowledge and experience*

*To design workshops for academic staff to help them overcome barriers in new online teaching formats and motivate them to actively participate in designing new online teaching materials and tools (e.g. through Certificate in International Education Practice)*

## 4.2 Assessment of developed methodological recommendations

The assessment of presented methodological recommendations has been performed, incorporating feedback from MILETUS project partners and students.

The four groups of the methodological recommendations have been isolated. They will be assessed using a questionnaire. The questions are, for each methodological recommendation, the followings:

- Is the recommendation feasible in the short/medium term? Y/N
- Is the recommendation useful for Higher Education Institutions to increase virtual mobility of the students? Y/N
- Would you suggest a change in the formulation of the recommendation? Y/N
- If yes, how?
    - Delete Y/N
    - Modify:
        - ❑ Describe the action in more details
        - ❑ Delete some parts
        - ❑ Reduce the scope of the action
        - ❑ Other, please specify_____
- (at the end of the recommendations) Do you have other suggestions for recommendation you would like to add? _____
- Comments:_____

The questionnaire can be found on the following link:

https://docs.google.com/forms/d/e/1FAIpQLScWWIpDo9B482CWq845vn64vHHJ9D7rgTmY9647NtbHfrJgkA/viewform?usp=sf_link .

# 5 Conclusion

The project's main goal was enhancing students' mobility capacity at higher education institutions (HEIs) in Serbia and Ukraine, while improving graduates' employability and increasing the quality of PhD students' research. It has been achieved through attaining more specific project objectives:

- Developing methodological framework for virtual and blended mobility runs, including guidance on best practices for key stakeholders at institutional and inter-institutional levels;
- Improving students' mobility governance at institutional level through Students' Mobility Offices and trained teaching staff;
- Opening up mobility programs for students with disabilities, thus enabling better social inclusion;
- Developing mobility formats for PhD students to improve research quality;
- Promoting exchange between Serbia and Ukraine and broadening the scope of future mobility destinations;
- Encouraging non-EU long-term partnerships.

Target groups which benefited from realization of this project were:

- teaching staff of HEIs coordinating the entire educational aspect of mobility initiatives,
- administrative staff of International Relations Offices (or specially established Students' Mobility Offices),
- partner countries Ministries of Education and Science shaping the trajectory of national educational system development,
- Master and PhD students of HEIs.

Administrative and teachings staff were selected for trainings based on good command of English, working experience, plans to keep on working for a HEI and willingness to be involved in students'mobility programs (SMP) at HEIs. Trainings focused on administrative procedures, cooperation between HEIs and ministries regarding SMPs, production of learning materials for students, supervision of students' mobility runs (SMRs) etc. Specific training sessions were dedicated to developing knowledge transfer skills for teaching staff. One of them was a training session on Problem-Based Learning, which enabled the teaching staff from Serbia and Ukraine to use this innovative approach in their HEIs.

International Relations Offices (IROs) or Students' Mobility Offices (SMOs) at HEIs in partner countries (PCs) were established or upgraded to arrange SMRs. Equipment necessary for this purpose and new eBooks were purchased on different topics (research methodology, scientific writing, cultural diversity, time management etc.). The books will be accessible beyond the lifetime of the project. Digital format will eliminate unavailability restrictions for students in form of lost or currently borrowed copies.

The project focused on improving quality of education and teaching by preparing teaching staff of HEIs for supervision of virtual students' mobility runs and for production of necessary learning materials for this purpose. Lectures on research methodology and other subjects (interpersonal communication, cultural diversity, personal time management, networking etc.) were produced by EU partners and made available through Moodle platform for online video-resources. For the second mobility run, spin-off lectures were developed by teaching staff from PCs in specific fields.

Since implementation of methodologies and pedagogical approaches in students' mobility runs requires the corresponding change on an administrative level, this project also pursued improving management and operation of HEIs. Physically limited or otherwise deprived students were targeted within the scope of this project, which opens them up to virtual mobility opportunities, thus democratizing HE in Serbia and Ukraine.

The selection of master students involved HEIs in PCs and EU partners. It was based on good command of English and previous academic success. Selected students were granted access to learning materials to prepare themselves for virtual SMR. The first virtual mobility run was supervised by teaching staff from EU HEIs. Students were grouped in teams of four, from different universities and academic areas.

Mobility format for PhD students was blended, including virtual and real mobility to correspond to customarily differing activity levels in research collaboration. PhD students were selected based on the same criteria applied to master students. PhD students found research fellows in partner institutions for joint work and were provided access to digital literature and online lectures on research methodology and cultural diversity.

Quality control (QC) and monitoring of the project progress were realized through a number of internal project activities, as well as participation of external actors ensuring more reliable control and monitoring. Some issues were identified in different work packages, such as: communication problems between the partners, low commitment of certain institutions, and different legislation, which led to a slowdown of certain activities. During the course of the project, there issues were addresses and improved. Internal quality control and monitoring were enabled through Steering Committee meetings and reporting.

Project participants in partner countries made presentations at annual job fairs on project results, highlighting competences acquired by students participating in mobility runs, to provide a link between potential employers and students. The brochures and leaflets were distributed to potential employers to keep them informed of graduates with new competences.

Finally, the sustainability plan with the inclusion of all partners was developed, incorporating the results of previously developed sustainability plans for online courses, mobility runs, and IROs upgraded or founded and providing a consolidated approach to securing sustainability of students' mobility programs at HEIs in Ukraine and Serbia.

Partner institutions have gradually got closer to meeting project goals without serious impediments, both conceptually and methodologically. In the course of the project, various differences emerged related to ease and pace of achieving specific project tasks and topics chosen by the students who participated in virtual mobility.

In order to improve potential future programs of virtual mobility, it is necessary to improve the selection criteria for project participants, regarding their technical knowledge and skills, team work experience, and virtual communication skills. That would promote cross-cultural virtual communication and ensure reaching better results and overall performance of the virtual mobility programmes in general.

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