# EADTU Mobility Matrix

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EADTU

Erasmus+

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## Introduction

According to the Programme Guide of the European Commission[2], "student mobility can be in any subject area/academic discipline. 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".

…"The study period abroad must be at a partner higher education institution (HEI). 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".

…"A study period abroad may include a traineeship period as well. Such a combination creates synergies between the academic and professional experience abroad and may be organised in different ways depending on the context: either one activity after the other or both at the same time. The combination of mobility periods in Erasmus+ follows the funding rules and minimum duration of study mobility".

In this document we build on these definitions given to mobility by the European Commission.

## Mobility as related to the curriculum

As is pointed out in the definition above, mobility should always be related to the curriculum or learning programme a student is following.

When Erasmus started in 1987, mobility was organised from one curriculum to another curriculum. This had no impact on the courses of both curricula, except eventual accommodation measures (e.g. linguistic). The central point was the international learning experience of the student through immersion in the host programme and university.

Increasingly international curricula were established, using Erasmus mobility for a more structured mobility of students, notably by the participation in so-called 'mobility windows' in programme networks.
From 2004 on, international joint curricula were created by the Erasmus Mundus programme at the master and the doctoral level[3]. In these programmes, all students move through two or more universities which co-own the programme.

As indicated in Fig. 1, university curricula differ, ranging from a weaker to a stronger collaboration, from less to more integration and structure, from a large to a smaller partnership, from a small impact of the partnership on the curriculum to large impact, from less to more mobility per class involved.

Three main types of curricula can be distinguished, to which mobility is related[4]. They can be described as follows:

[2] https://ec.europa.eu/programmemes/erasmus-plus/sites/erasmusplus2/files/erasmus-plus-programmeme-guide2_en.pdf , p. 31
[3] Since the introduction of Erasmus+, programme collaboration at the doctoral level is integrated in the Marie Curie Actions.

- **Exchange curricula with individual exchange mobility:** in exchange curricula and exchange mobility, students, choose a study abroad at a host university, according to an *individual mobility arrangement (Erasmus Learning Agreement) for courses on which the host and home university agree*. The credits attained during this mobility period are recognised by the home university, which awards the final degree. As part of the agreement, the host university offers to mobility students all services that allow them to follow the programme successfully. Individual exchange is the basis from which internationalisation has started at most European universities. It is estimated that on average 20% of the students can benefit from an individual exchange mobility, when the home programme promotes this.

- **Networked curricula with networked mobility:** In networked curricula and mobility, each partner in the network runs its home curriculum independently, but students can extend this curriculum with *mobility windows* or course packages in partner universities, enlarging and enriching their curriculum. This can be arranged in a network agreement. Mobility windows can consist of diverse learning activities like a complementary major or minor, specialisation courses, research internships, joint projects or thesis work. The partner institutions expect and stimulate groups of students to follow these packages as a diversification of the home programme. In the European context, the ECTS system guarantees the *credit transfer and the recognition* of courses which is practiced in the Erasmus programme. A *double certificate or double degree* can possibly be granted, since the scheme is based on two independent curricula. Networked programmes can aim at a mobility of more than 20 of the students.

- **Integrated/joint curricula with integrated or embedded mobility paths:** a joint curriculum is designed as one single, common programme owned by different universities. Mobility flows for all students are embedded in this structure and joint certificates/degrees are delivered. Mobility is conceived in pre-designed mobility paths. In the individual study programmes (ISPs), individual mobility paths are defined of which the components are taught by different partners and on different locations. This type of collaboration optimally integrates all relevant educational, research and innovation strengths of the partners. It is a distributed international, multi-partner and multi-campus curriculum with embedded mobility flows. In principle, all students are involved in mobility, which is inherent to a joint degree programme. In Fig. 1, these types of collaborative curricula and related mobility are operationally described. Double and joint degrees can be delivered in all European countries.

[4] G.Ubachs & P.Henderikx, EPICS: new opportunities for international student mobility. EPICs for virtual Erasmus, 2010. See: http://www.epics-ve.eu/images/stories/Documents/Manual_EPIC_EADTU_211010.pdf
B. De Moor & Piet Henderikx, International curricula and student mobility. Advice Paper, League of European Research Universities, LERU, 2013. See: https://www.leru.org/files/International-Curricula-and-Student-Mobility-Full-paper.pdf

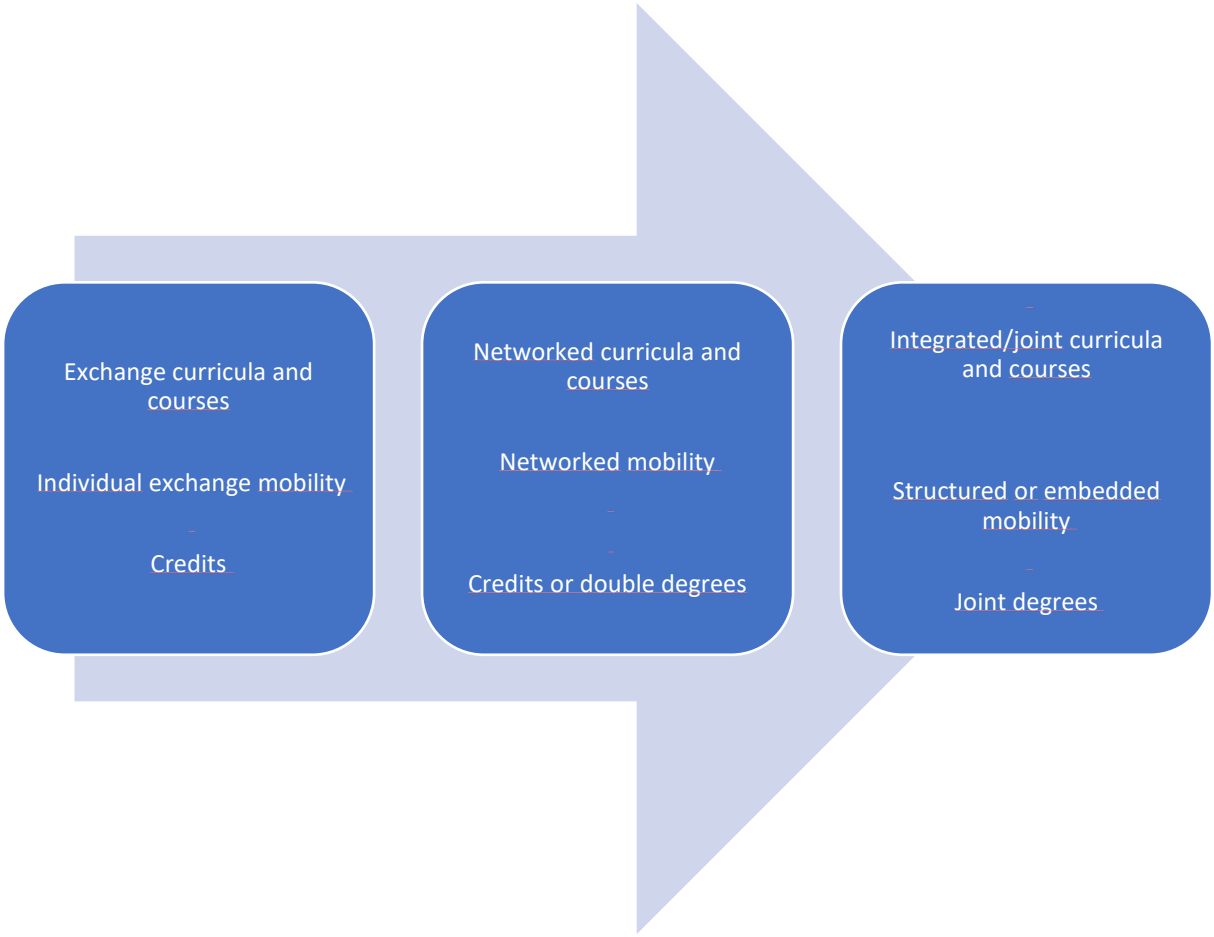


Fig.1 From Erasmus exchange to networked and joint programme mobility - *A continuum of three types of partnership schemes for international curricula and mobility, ranging from less to more integration and structure, from more to less partners, from a weaker to a stronger collaboration, from small impact on the curriculum to large impact on the curriculum, from less to more mobility per class involved*

## The course level

The same typology can be applied at the course level, e.g. networked or jointly developed and delivered courses, joint seminars, summer or winter schools, projects or think tanks. Also, MOOCs might be integrated in such mobility schemes, when the MOOC also provides an assessment/exam, awarded with a credit and an institutional agreement or at least a learning agreement is signed. Such MOOC mobility is already practiced within a consortium of technical universities on the edX platform. edX also allows MOOCs of different universities to be combined into micro-masters, which may have a value in some master programmes in the network.

## Joint PhD's

Last decade, a lot of experience is gained by European universities in the field of split-site doctorates and joint doctorates, the first impetus coming from the French "co-tutelle de thèse" and later from the Erasmus Mundus Joint Doctorate Programme. Many universities have developed good practice in the field, leading to:

- a structural cooperation with regard to doctoral training of the candidate with co-supervision and a jointly agreed research track ending with a joint doctoral degree
- a broader and more intensive cooperation between the research groups concerned
- access to seminars, conferences, specialized courses
- new research themes, resulting from the cooperation between two or more research schools
- sharing of resources and research environments like unpublished reports, data bases, labs, infrastructure, libraries in the partnership, etc.
- direct communication with relevant research staff in the partnership
- access to new networks at the national and international level
- earlier and more (co) publications, especially when research in the partnership is well coordinated

## Virtual mobility

Virtual mobility can be organised for individual exchange, for networked mobility and for embedded mobility[5].

Of course, virtual mobility can't replace the international immersion aspect of physical mobility. It cannot replace physical mobility, where such an immersion is wanted or requested. In practice, about 20% of the students (in some subject areas even more) will participate in physical mobility as an immersion in another academic, linguistic and cultural environment. It can be expected that in the future almost all students will be involved in virtual mobility, including those who go abroad. Physical and virtual mobility serve different objectives. They can be organised at different stages in a curriculum. This depends entirely on the design of a curriculum or course.

[5] P.Henderikx & G. Ubachs, General models for collaborative curricula and mobility. In: G. Ubachs (Ed.), Netcu. Handbook for organizing networked curricula, 2012. See: http://www.networkedcurricula.eu/sites/default/files/handbook/NetCu_Handbook_Final.pdf

Virtual mobility creates accessible, flexible, scalable and cost-effective solutions for all types of curricula, especially in collaborative curricula. In principle, all students can participate in virtually mobility schemes. Mobility paths can be personalized and involve multiple universities.
EADTU has developed tools for virtual Erasmus exchange, reflecting the requirements of the standard Erasmus scheme[6]. Essential elements in this scheme are:

- an institutional agreement
- a course catalogue, customized and restricted to the partners in this institutional agreement, with pre-assessed and recognized online courses or learning activities
- a student application form
- a learning agreement
- transcript of records.

In the case of networked programmes, the institutional agreement and the learning agreement concerns the online mobility windows/ course packages which can be followed at universities within the network.

In joint programmes, online mobility tracks are inherent to the structure of the programme and the pathway to be followed by the student. In joint programmes, arrangements are made between the universities regarding the individual study programme (ISP) for each student, the services to the student on the successive locations, the examinations, the credits and the joint diploma and the registration and the participation fees (main registration, subsidiary registrations)[7].

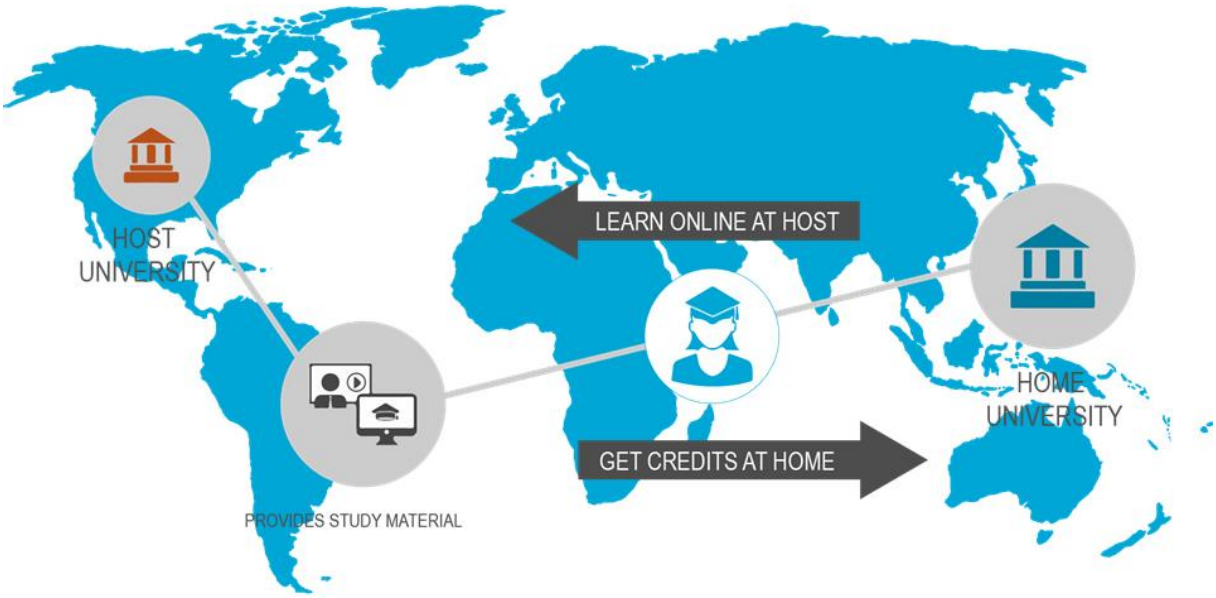


Fig.2: Virtual exchange scheme at TU Delft[8]

[6] G.Ubachs, EPICS: new opportunities for international student mobility. EPICs for virtual Erasmus, 2010. See: http://www.epics-ve.eu/images/stories/Documents/Manual_EPIC_EADTU_211010.pdf
[7] Good practices can be found in the Erasmus Mundus master and doctorate programs
[8] Delft University of Technology. See: https://www.tudelft.nl/studenten/onderwijs/virtual-exchange/

*Specific benefits for virtual mobility are:*

- It is scalable. It can engage all students in a classroom, as there are no barriers for trans-border education. More students are involved, if not all in a class.
- It is flexible, as it can be applied just in time, synchronously and asynchronously, from any place.
- It can create new, virtual learning spaces and communities, in which staff and students of different institutions can be integrated and synergies can be developed, e.g. in virtual classrooms or learning communities
- Creates opportunities for intercultural exchange and for the development of online international communication and collaboration skills.
- Students who want to study a subject which is not available at the home university can follow online courses at a host university as well as a virtual seminar, a virtual lab, a MOOC, a micro-master, etc. The unit of mobility can be small and stretched over time. It can also be a mobility window.
- Part-time students can replace a face to face course in the home university programme by an online course of another university, which is enhancing the flexibility of learning paths
- Multiple universities and different countries/continents can be engaged simultaneously, which is in particular useful for networked or joint courses and curricula.
- Students for any reason not involved in physical mobility, can be involved in virtual mobility
- Part-time and working students, mature students and students with special needs can participate conveniently
- It is cost-effective for the student

In the EPICS Handbook on International Mobility[9], this added value is stated as follows: "Virtual mobility should not only be considered as an instrument to enrich physical mobility but as an innovative and fully fledged form of international mobility per se. It can add new and innovative educational opportunities, with the additional possibility to create an environment for several international universities simultaneously, rather than remaining in only one host and one home university like a physical mobility scheme usually provides. It can offer more varied modes of study which can be shorter, less time specific and place independent, as well as supply more personalised and more specialised opportunities for the student. It includes collaborative learning in online student communities, virtual seminars, virtual projects, joint thesis work, constructive group learning around wiki-like activities with different stakeholders involved, etc. An international experience by virtual mobility therefore is not restricted to one university or country and group of fellow students. Further the skills gained in virtual mobility reflect the skills needed in today's labour market, such as intercultural skills, the ability to communicate and cooperate in an online environment and proficiency in modern ICT and web technologies".

## Open virtual mobility with open online course catalogues

In the case of virtual mobility, a university programme might prefer to make its online course catalogue also open to students and universities outside of an institutional agreement, in particular online courses, MOOCs (on a MOOC platform or on their learning environment), virtual seminars, projects, educational games, virtual labs, etc.

In this case, its course catalogue is not restricted anymore to institutions with which it signed an institutional (Erasmus) agreement for exchange mobility. A student of another university can take

[9] http://www.epics-ve.eu/images/stories/Documents/Manual_EPIC_EADTU_211010.pdf

the initiative to apply for mobility on online courses or learning activities in the open catalogue of this programme. This can be called open virtual mobility, to some extent comparable with the free movers part in the physical Erasmus scheme.

In order to organise open virtual mobility, all other elements of the standard virtual Erasmus exchange scheme are still necessary, notably the *tripartite learning agreement* between the home and host university and the student. This will guarantee the rights of the student and the obligations of the universities. The host university will allow the student to the online course and to all services. It will also award credits and notify them on a transcript of records. The home university will recognize the credits in the home curriculum.

This is relevant for many university programmes which don't have online courses and want to give students broader opportunities for an international academic experience. Universities are just starting to develop online courses and other learning formats, suitable for virtual mobility. Although MOOCs have influenced the scale and the quality of the development of online courses, in most universities, there is no critical mass yet of online courses to organise virtual mobility. Only the European open and distance teaching universities[10] organise large scale and high quality online programmes in all study domains.

Therefore, open virtual mobility, involving universities with open online course catalogues can be a solution, particularly for students who are interested in subjects which are not available in the home university, for part-time students and for students at work. In a short term, (open) virtual mobility with open and distance teaching universities and with universities organizing already online courses and MOOCs might create opportunities. Some universities have developed institutional policies to accelerate the development of online masters, postgraduate programmes and MOOCs[11]. This is also increasing possibilities for (open) virtual mobility.

The OpenVM project is currently exploring the possibilities of open virtual mobility[12] , mainly in informal and non-formal learning scenarios.

### Online distance education

In Europe, online distance education is mainly provided by open and distance teaching universities, but increasingly also conventional universities in all European countries have developed initiatives. Some conventional universities develop transnational bachelor and master programmes online[13], meaning that they organise education crossing national borders. This is also the case in many universities in the US and Australia.

Students who follow such courses or programmes can valorise course credits in degree programmes they follow subsequently. However, since there was no learning agreement, the latter programme will apply admission criteria a usual and there is no guarantee that it will recognize the course and the credits.

[10] For a list of open and distance teaching universities, see: www.eadtu.eu

[11] For example the University of Edinburgh, TU-Delft, Wageningen University

[12] See: https://www.openvirtualmobility.eu.

[13] For example the University of London: https://london.ac.uk/ways-study/study-campus-london/member-institutions
https://london.ac.uk/ways-study/studying-paris

Also in online distance programmes, exchange mobility can be organised based on institutional agreements and learning agreements as described. But, following a course or a curriculum online in itself cannot be considered as international mobility, since there is no institutional or learning agreement, neither a transfer of credits, engaging universities.

## EADTU Mobility Matrix

The EADTU Mobility Matrix aligns with current mobility schemes of the European Commission, notably Erasmus+ KA1 Erasmus Mobility and the Erasmus Mundus Joint Masters Programmes, as well as with the ambitions of the EU and European Commission with regard to educational collaboration and mobility. It extends current schemes with a coherent view on virtual mobility and on open virtual mobility.

It is also based on EU projects[14] of last ten years, the EADTU Networked Curriculum Handbook and the LERU-report on collaborative curricula and related mobility.

The matrix is also discussed with universities in the membership of EADTU and on seminars European-wide [15].

The matrix presents three forms of mobility: physical exchange mobility, virtual exchange mobility and open virtual exchange mobility.
Virtual mobility is frequently confused with online distance education. In this version of the matrix, we have added a column for distance education in order to compare virtual mobility with transnational online distance education.

For each type of mobility and for online distance education, main features are defined, inclusive the benefits for students and institutions:

- A definition
- The unit of mobility
- The main objectives
- Supporting mobility
- Short term mobility
- Networked programmes and mobility
- Joint programmes and mobility
- The course catalogue
- The institutional agreement
- The learning agreement
- The registration of students
- The transcript of records
- The institutional decision level
- Accountability
- Main challenges
- Benefits for students
- Benefits for institutions

[14] E-move and EPICs, coordinated by EADTU

[15] Some elements will be further elaborated by an EADTU Task Force Virtual Mobility, which will report on the EADTU conference 2018 at the University of Aarhus (October 2018)

**EADTU Mobility Matrix**

| | Physical exchange mobility | Virtual exchange mobility | Open virtual exchange mobility | Transnational online distance education |
|---|---|---|---|---|
| **Definition** | Physical mobility as individual (Erasmus) exchange,<br><br>Window mobility (majors, minors, specialization packages) in networked programmes<br><br>Individual study programmes (ISPs) with mobility paths in joint programmes<br><br>Always within a bilateral, multilateral agreement | Exchange by mobility online, following similar rules as physical (Erasmus) exchange<br><br>Window mobility (majors, minors, specialization packages) in networked programmes<br><br>Individual study programmes (ISPs) with mobility paths in joint programmes or courses<br><br>Always within a bilateral, multilateral agreement | Exchange by mobility online, same rules as standard virtual exchange mobility, but outside of a previous institutional agreement.<br><br>Courses are found on open course catalogues or in programmes of other universities. | Transnational online distance education delivers programmes or courses in another country which is different from the country of the provider, e.g. on line masters, postgraduate programmes or MOOCs<br><br>There is no exchange mobility, except when foreseen by the programme, then go to columns 1,2,3. |
| **Main objectives** | Usually a long term international academic experience (at least 15 ECTS)<br><br>Immersion<br><br>Personal development<br><br>Language learning<br><br>Intercultural competencies | A short or long term international learning academic experience through online courses or other learning activities<br><br>Intercultural competencies<br><br>International digital communication skills | A short or long term international academic experience through online courses or other learning activities<br><br>Intercultural competencies<br><br>International digital communication skills | Large scale and flexible transnational delivery of degree programmes, continuous education programmes / CPD, single courses, MOOCs, etc. |
| **Unit of Mobility** | *Curriculum*-based, at least 15 | Individual exchange on the basis of | Individual exchange on the | *Curriculum or course* |

| | Physical exchange mobility | Virtual exchange mobility | Open virtual exchange mobility | Transnational online distance education |
|---|---|---|---|---|
| | ECTS, except for specific activities as intensive programmes, summer schools, internships, etc.<br><br>As *set of courses* as agreed by both universities and the student<br><br>A *course package* in the case of *window mobility* in networked programmes<br><br>*Embedded mobility paths* in the case of joint programmes in the successive stages of the individual study plans of students | a *course*, a *learning activity* or a *curriculum* found in a course catalogue on the internet (e.g. on catalogues of universities, MOOC platforms, etc.)<br><br>A *course package* in the case of *window mobility* (a minor, a specialization, …) according to a network agreement<br><br>*Embedded mobility* in joint programmes in the successive stages of the individual study plans of students | basis of *courses* or *learning activities* found in an open course catalogue on the internet<br><br>*A course package* in the case of *window mobility* ( a minor, a specialization, …) found an open course catalogue;<br>Unlikely in joint programmes as the approval of all partners in a consortium should be sought | e.g. a degree programme, a short (postgraduate) learning programme, a single course, a MOOC |
| **Supporting mobility with face to face or online activities** | Online learning activities can support physical exchange<br><br>In the course of a study career, both physical and virtual mobility can take place | Virtual exchange can be supported by physical introduction days/week, wrap-up days/week at the end of the programme/course, depending of the design of the course or the programme, e.g. in the case of on online master, a virtual seminar/lab, a networked or joint programme | Online course(s) at a host university can include some face to face activities | Transnational online distance education programmes can be blended, e.g. by introduction weeks, lab sessions, thesis weeks, summer or winter schools, etc.<br><br>This is certainly the case in doctoral programmes. |
| **Short term** | Short term mobility *only possible* | Short term mobility on the course | Short term mobility on the | |

| | Physical exchange mobility | Virtual exchange mobility | Open virtual exchange mobility | Transnational online distance education |
|---|---|---|---|---|
| **mobility** | through intensive programmes, summer and winter schools, etc. | level is perfectly *possible*: e.g. an online course, a virtual seminar, a virtual lab, learning games, a MOOC, a project, a think tank, a virtual internship…. | course level is perfectly *possible*: e.g. an online course, a virtual seminar, a virtual lab, learning games, a MOOC, a project, a think tank, a virtual internship…. | |
| **Networked programmes and networked mobility** | In networked curricula: students within the network can choose *alternative windows for complementary or specialized course packages* (minors, research and thesis work,…) | In networked curricula: students within the network can choose *alternative blended/online windows with complementary or specialized course packages* (minors, research and thesis work,…) | As there is no institutional agreement, there is no networked curriculum.<br><br>Nevertheless, a student can choose an online mobility window at another university with complementary or specialized course packages (minors, research and thesis work,…) in agreement with the home university | |
| **Joint programmes and integrated / embedded mobility** | In joint programmes: an intensive international experience with integration of staff and students in successive stages of the curriculum and related *mobility paths* within the consortium, according to the ISP of the student | In joint programmes: an intensive international experience with integration of staff and students in successive stages of the curriculum and related *mobility paths* within the consortium, according to the ISP of the student | Not applicable | Joint transnational online programmes can be organised by a consortium of universities with successive stages. |
| **Institutional** | Rector | Rector | At least the Dean for | Not applicable |

| | Physical exchange mobility | Virtual exchange mobility | Open virtual exchange mobility | Transnational online distance education |
|---|---|---|---|---|
| **decision level** | | | window mobility<br>Staff level or Dean for single courses, depending on local procedures | |
| **Course catalogue** | Yes, *restricted* to programmes/courses in the institutional, network or consortium agreement | Yes, *restricted* to programmes/courses in the institutional network or consortium agreement | *Open* course catalogues or online programmes of other universities, MOOC platforms, etc.<br><br>Students or staff can select an online course or learning activity, e.g. which is not available in the home university or which is an alternative for a f2f course (e.g. for part-time or working students) | *Not applicable*, courses are known at registration. The course catalogue contains the courses of the programme. Exchange mobility can be practiced according to policies of the institution, then column 1,2 or 3 is applicable. |
| **Institutional agreement** | A *bilateral* institutional agreement in the case of individual mobility<br><br>A bilateral or multilateral agreement in the case of window mobility in networked programmes with alternative mobility windows (*network agreement*)<br><br>A consortium agreement in the case of mobility in joint | A *bilateral* institutional agreement in the case of individual mobility - A *bilateral or multilateral* agreement in the case of window mobility in networked programmes with alternative mobility windows (*network agreement*)<br><br>A consortium agreement in the case of mobility in joint programmes | Online courses / MOOCs / virtual seminars or labs / online think tanks, etc. are retrieved from universities outside of a previous institutional agreement. However, a learning agreement is always requested | Not applicable, one university organises owns the entire transnational curriculum |

| | Physical exchange mobility | Virtual exchange mobility | Open virtual exchange mobility | Transnational online distance education |
|---|---|---|---|---|
| | programmes (*consortium agreement*) | (*consortium agreement*) | | |
| **Learning agreement** | Yes, *a tripartite learning agreement* guarantees the rights of the student: access to teaching and learning activities, interaction with staff and peers, assessments, exams, credits for recognition, transcript of records.<br><br>For double and joint degrees a common *diploma supplement* is given. | Yes, *a tripartite learning agreement* guarantees the rights of the student: all teaching and learning activities, interaction with staff and peers, assessments, exams, credits for recognition, transcript of records.<br><br>For double and joint degrees a common *diploma supplement* is given. | Yes, a *tripartite learning* agreement guarantees the rights of the student: all teaching and learning activities, interaction with staff and peers, assessments, exams, credits for recognition, transcript of records | Not applicable, as there is no exchange. The university in which the student is registered delivers credits, awards, degrees, which subsequently can be recognized when the student registers at another university. A *Diploma Supplement* is given |
| **Registration** | Registration needed in *two universities* for individual exchange and networked or window mobility.<br><br>In *two or more universities* when the student successively follows parts of a joint programme | In principle, the student can register for exchange at *more than one university* as he can follow exchange courses at different universities, without moving to another place. All depending on policies and decisions at the home curriculum | In *two universities* for following a single course or a minor or specialization. Unlikely that a university allows for a completely free or open programme | Only in the institution, which owns the programme |
| **Transcript of records** | Yes | Yes | Yes | Not applicable;<br>Diploma supplement is available (EU) |
| **Accountability** | Institutional agreements and tripartite learning agreements guarantee the *institutional commitment* for taking a number of students (after selection) and guarantee the | Institutional agreement and tripartite learning agreement guarantee the *institutional commitment* for taking a number of students (after selection) and guarantee the rights of the student | *No institutional agreement*, therefore universities don't guarantee to take a student (it depends on number of places available and on academic criteria). | Student has to check accreditation and recognition of credits for a course or a programme for subsequent valorisation in other universities or by employer |

| | Physical exchange mobility | Virtual exchange mobility | Open virtual exchange mobility | Transnational online distance education |
|---|---|---|---|---|
| | rights of the student | | *A tripartite learning agreement* guarantees the rights of the student | |
| **Main challenges** | Cost to the student, especially when no (Erasmus+) grants are available – mainly travel and subsistence.<br><br>Delivering a truly intercultural experience for students in a host university<br><br>Cost to the institution | The limited number of online and even blended courses available in universities. Therefore, open virtual mobility is an option to be considered. See column 3.<br><br>Methodologies for examinations to be considered (EPICs, TESLA)<br><br>Scalability of learning communities and of e-assessment methods<br><br>Cost to the institution | Online courses and learning activities to be found in open course catalogues and programmes of other universities.<br><br>Methodologies for examinations to be considered (EPICs, Tesla)<br><br>Scalability of learning communities and of e-assessment<br><br>Cost to the institution | Costs to student dependent on the fees to be paid (for the entire course, including exams)<br><br>Building a community by designing courses accordingly<br>Designing and developing courses and curricula<br>Balancing scale, quality and cost (the iron triangle) |
| **Main benefits for students** | A student can benefit from a long international learning experience<br><br>A student can follow alternative courses or learning activities by individual exchange mobility with other universities<br><br>A student can follow a mobility window at another university. | A student can benefit from a flexible offer of a short or a long international learning experience online<br><br>A student can have an alternative course or a learning activity by online mobility with other universities<br><br>A student can follow a mobility window / course package online at | A student can benefit from a flexible offer of a short or long international learning experience<br><br>A student can have a course or a learning activity which is not available at his own university, neither in agreed mobility schemes (outside of institutional agreements) | Large scale and flexible delivery of programmes and courses<br><br>International online distance programmes give students worldwide the opportunity to follow academic degree programmes, continuous education programmes/CPD or open education/MOOCs, especially those not available in their own country |

| | Physical exchange mobility | Virtual exchange mobility | Open virtual exchange mobility | Transnational online distance education |
|---|---|---|---|---|
| | | another university.<br><br>A student can benefit of the strength of a joint programme with integrated mobility which is (partially) online.<br><br>The rights of the student are guaranteed as in the standard Erasmus exchange scheme (learning agreement)<br><br>No barriers of place and cost | The rights of the student are guaranteed as in the standard Erasmus exchange scheme (learning agreement)<br><br>No barriers of place and cost | Online distance programmes are flexible, which is especially important for students at work and part-time students |
| **Main benefits for institutions** | Universities offer additional opportunities for an international academic experience by an immersion in another university and culture/language<br><br>Universities enrich their programmes, notably in the case of networked and joint curricula<br><br>Recruitment of international students for subsequent programmes is facilitated | Universities offer additional opportunities for an international academic and intercultural experience by online exchange and joint learning activities<br><br>Universities enrich their programmes, notably in the case of online components in networked and joint curricula, reducing costs to students<br><br>Multi-campus solutions are very | Host universities and academic staff increase their academic visibility and reputation by the quality of the learning activities offered<br><br>By the participation of international students in learning activities, e.g. learning communities, projects, seminars, think tanks, host universities can easily organise online | Recruitment of international students by flexible, scalable and high quality online courses and programmes<br><br>Organising open education, e.g. MOOCs |

| | Physical exchange mobility | Virtual exchange mobility | Open virtual exchange mobility | Transnational online distance education |
|---|---|---|---|---|
| | Universities increase internationalization credits for funding (in some countries)<br><br>On the average, up to 20% of the students can benefit from physical mobility | well possible<br><br>Universities can easily organise online international activities, e.g. international classrooms, learning communities, projects, seminars, think tanks, etc.<br><br>Recruitment for subsequent programmes as well as for eventual regular Erasmus exchange is facilitated<br><br>Up to 100% of the students can benefit of (open) virtual mobility | international classrooms, synchronously or asynchronously<br><br>Recruitment of international students for subsequent degree or continuous education programmes as well as for eventual regular Erasmus exchange is facilitated<br><br>Up to 100% of the students can benefit of (open) virtual mobility | |

Table 1: EADTU Mobility Matrix

## Cost structure of physical and virtual mobility

All mobility schemes have nearly the same *cost components* (see table 2):

- Organisational cost
  This is the cost to an institution to organise international exchange mobility. This cost is located both at the central and at the faculty/programme level and includes costs related to the implementation of mobility, networking with partner institutions, the administration of institutional agreements and individual learning agreements, information and guidance for students, the registration of students, the transcript of records, etc. Virtual mobility schemes might organise mobility for smaller units of students, e.g. online courses, virtual seminars, MOOCs, etc. which probably would result in a higher organisational cost per credit.
  In both cases, the organisational cost will be lower, when processes are automated.

- Preparatory cost: language and culture courses
  Universities are requested to organise preparatory language and culture courses, preparing for a long study period (15 ECTS and more).
  Online students might also benefit of these preparatory courses or similar courses online.
  The European Commission is offering linguistic courses and assessment on the Online Linguistic Support website[16]

- Travel, housing, insurance and other costs
  This is the administrative cost to institutions for students residing at a host university. It is only applicable for physical exchange for a longer period or a shorter period (summer/winter school, introductory/closing weeks

- Educational cost
  This is the cost related to the courses to be followed by the student (teaching and learning cost).
  The principle of Erasmus mobility is that these costs are balanced between institutions by the mutual exchange of students.

- Blending components
  This cost is related to the eventual blended components of mobility, preparing for a course or mobility period at another university. This can be online education or an online preparation for physical mobility. In virtual mobility schemes, this might be some face to face activities, e.g. an introductory or closing week.

- Examinations
  In physical exchange schemes, these are taken at the host university as a part of the mobility period. In virtual schemes, staff of the host university or the student has to travel to take the examination. Gradually, on line examinations will be organised online by the host university at the home university. Up to now, these online examinations are proctored.

The *cost structure* of physical and virtual mobility is different.

For both forms of mobility, the organisational costs, the eventual “language and culture preparation” costs and the educational cost are high.

[16] https://erasmusplusols.eu/online-language-courses/

The cost of physical mobility is particularly high with regard to travel, housing, insurance and other costs. In most cases, it is covered by the Erasmus+ KA1 Mobility or the Erasmus Mundus Programme.

The cost of virtual mobility is particularly high with regard to the organisation of examinations and in cases where virtual exchange is combined with face to face events (travel and subsistence costs, short mobility cost).

**Costs components of physical and virtual mobility**

| | Physical exchange mobility | Virtual exchange mobility | Open virtual exchange mobility |
|---|---|---|---|
| **Organisational cost** | *Cost to the institution:* high procedural and registrar costs, when not automated. | *Cost to the institution:* high procedural and registrar costs, when not automated | *Cost to the institution:* High procedural and registrar costs, when not automated |
| **Preparatory language and culture course** | *Cost to the student:* depending on the format - face to face introduction weeks and language courses, or online provisions. Cost to the student can be compensated by a grant<br><br>*Cost to the institution:* high | *Cost to the student:* depending on the format - face to face introduction weeks and language courses, or online provisions. Cost to the student can be compensated by a grant<br><br>Not all students probably need such preparation, especially in case less than 15 credits are taken<br><br>*Cost to the institution:* high | *Cost to the student:* depending on the format - face to face introduction weeks and language courses, or online provisions. Cost to the student can be compensated by a grant<br><br>Not all students probably need such preparation, especially in case less than 15 credits are taken<br><br>*Cost to the institution:* high |
| **Travel, housing, subsistence, insurance and other costs** | *Cost to the student:* high (if no grant)<br><br>*Cost to the institution:* high organisational cost<br><br>Students can use all services of the university, e.g. for housing, healthcare, etc. | *Cost to the student*: restricted to face to face learning events | *Cost to the student:* restricted to face to face learning events |
| **Educational cost** | *Cost to the student:* no cost, if fee waiver for exchange is applied, except for course material.<br><br>*Cost to the institution:* marginal cost per student is the same as for any other face to face student in the programme. | *Cost to the student*: no cost, if fee waiver for exchange is applied, except for course material.<br><br>*Cost to the institution:* marginal cost per student is the same or lower than for a face to face student, depending on the total number of students already registered for the online course(s) | *Cost for the student*: no cost, if fee waiver for exchange is applied, except for course material.<br><br>*Cost to the institution:* marginal cost per student is the same or lower than for a face to face student, depending on the total number of students already registered for the online course(s) |

| | Physical exchange mobility | Virtual exchange mobility | Open virtual exchange mobility |
|---|---|---|---|
| | Overall institutional cost is *restricted* by the number of students indicated in the institutional agreement and by the actual registrations | Overall institutional cost is *restricted* by the number of students indicated in the institutional agreement and by the actual registrations | Overall institutional cost is *restricted* by the number of students allowed for a tripartite learning agreement<br><br>*Fee can be asked when additional students take a course outside of institutional agreement* (a learning agreement is always requested). |
| **Blending components** | *Cost to the student*: no cost, if a fee waiver for exchange is applied, except for supplementary course material.<br><br>*Cost to the institution:*<br>marginal cost per student for online components supporting physical exchange is the same or lower than for a face to face provision. | *Cost to the student:* travel and subsistence cost are high for additional face to face activities (e.g. introductory days/week, project presentations, labs, etc.), when no grant available<br><br>*Cost to the institution:* high organisational cost for face to face activities | *Cost to the student:* travel and subsistence cost is high for additional face to face activities (e.g. introductory days/week, thesis/project presentation days/weeks, labs, etc.) , when no grant available<br><br>*Cost to the institution:* high organisational cost for face to face activities |
| **Examinations** | *Cost to the student*: no cost if a fee waiver is applied<br><br>*Cost to the institution:* the same cost as for other students, since the exams are taken during the mobility period | *Cost to the student*: no cost when a fee waiver is applied<br><br>*Cost to the institution:*<br>high, as proctored exams have to be organised<br><br>Cost to the institution can be restricted by limiting the numbers of participating students or institutions | *Cost to the student*: no cost if a fee waiver is applied<br><br>*Cost to the institution:*<br>high, as proctored exams have to be organised<br><br>Cost to the institution can be restricted by limiting the numbers of participating students or institutions<br>The more open to other students or institutions, the higher the cost |

Table 2: Cost components in physical and virtual mobility

## The EPICs Manual and Portal

The EPICS project (European Portal of International Courses and Services)[17] has resulted in an EPICS Manual for International Student Mobility and the EPICs portal, which might be used for virtual mobility and open virtual mobility as defined above.

The ambition of EPICs was to bring virtual mobility out of the pilot phase and enhance it to the mainstream of European higher education by facilitating the integration of students and curricula in the European higher education area. In practice this means that:

- Virtual Exchange is based on established mobility schemes by bi- and multilateral agreements between universities.
- Students can find selected courses from other universities directly on the website of their home university.
- Available courses are pre-assessed and recognised by student's home university. No negotiation from the student is needed.
- The content of the international courses is coherent with the home university programme
- Free of charge for students, except for study materials and books.

Virtual Exchange was designed in close correspondence with the running mode of the physical Erasmus Programme. The major consequence of this decision was that the core of the ECTS agreements is respected, which is also the basis of the physical Erasmus scheme. The ECTS documents constitute a widely used and accepted way of communicating those elements of information which are useful for all learners (including mobile and non-mobile students), academic and administrative staff, employers and other stakeholders. Using ECTS key documents correctly ensures transparency and enhances quality in higher education.

The EPICs portal contains a:

- Database on distance courses with subcategories of Virtual Exchange courses, meaning without extra fees for the students, except for study materials if applicable.
- A service portal for students, including a study guide for on line learning, contacts of every university, administrative information, library links, ECTS explained to students, language skills tests.
- A service portal for staff, including guidelines for online and distance teaching and learning, a quick reference guide, library links, information on all institutions that have submitted courses to the database, tools for (multimedia) teaching and learning support, formats for Virtual Exchange agreements examples of good practice
- A Virtual Exchange Information Package containing all relevant information on the scheme, the submission of courses and the set-up of a partnership.
- A glossary and wiki as well as several other services like virtual meeting rooms are available on EPICS.

Universities can limit the access to online courses to an institutional partnership or open it to other students and universities.

It is the ambition of EADTU to revise the manual and portal and to integrate it in the solid architecture of a European hub, the eU.University. This should stimulate curriculum collaboration and virtual mobility.

[17] http://www.epics-ve.eu/images/stories/Documents/Manual_EPIC_EADTU_211010.pdf

## Main conclusions

1. Student mobility is always related to the curriculum. Its place is defined by the design of the curriculum.
   Three main types of curricula can be distinguished:
   - Exchange curricula and individual exchange mobility
   - Networked curricula with mobility windows and networked mobility
   - Joint curricula and embedded mobility paths
2. As international collaborative curricula become more integrated, the mobility schemes become more structured and integrated as well.
3. Mobility can be organised at all qualification levels (bachelor, masters and PhD level) as well as in postgraduate programs. Short term mobility can also be organised at the course level (online courses, MOOCs, virtual seminars, virtual labs, think tanks, projects, etc.) as is demonstrated already in micro-masters and other MOOC-based programs already, as well as in think tanks and virtual seminars in university networks.
4. Virtual mobility can be organized for individual exchange, for networked mobility (mobility windows) and as embedded mobility in joint curricula.
5. Physical mobility and virtual mobility are complementary to each other as each serves own objectives. Both can be organized at different stages in a curriculum, depending on the design of the programme or course. Organizing both physical and virtual mobility would allow all students to have an international learning experience throughout the curriculum. It would also better prepare students with intercultural competences and ICT communication and collaboration skills for the internationalized labour market.
6. Physical mobility creates for the student an immersion in another academic, linguistic and cultural environment. No less than 20% of the students will participate in a physical mobility scheme (in some subject areas even more).
7. Virtual mobility creates flexible, scalable and affordable mobility solutions for all types of curricula and courses, but not an immersion. It is expected that in the future all students will participate in virtual mobility schemes, including those who go abroad. Virtual mobility can be organised synchronously (virtual classrooms) and asynchronously (online) and it can involve multiple universities.
8. Virtual mobility is suitable for the course level as well as for the curriculum level, especially for engaging in mobility windows and in joint programs (at least partly). It delivers an international academic experience and intercultural collaboration and online communication competences.
9. Many more online learning activities and online courses will be organised at universities. Opportunities for virtual mobility will increase when more online courses will be available.
10. In a short term, open online course catalogues can boost virtual mobility in all universities.
11. In all mobility schemes, a tripartite learning agreement is a most important condition to guarantee the rights of the student and to engage home and host universities or university networks/consortia.
12. The EADTU mobility matrix shows the features, strengths and challenges of physical and virtual mobility.
13. Although the cost components of physical and virtual mobility are almost the same (except the travel, housing and insurance cost), the cost structure is different, legitimating both for funding by the EU.
14. European projects have already developed a thesaurus of expertise and experience in both physical and virtual mobility.
15. Physical and virtual mobility opportunities should be integrated in the eU.University, the European hub for higher education.

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