Draft LERU paper on

International curricula

and

student mobility

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CONTENTS

0. SUMMARY

0.1. This position paper on student mobility schemes, is written for university leaders, curriculum managers and policy makers. Its objectives are:

0.1.1. To propose a **taxonomy for several types of student mobility schemes**, namely exchange mobility, networked mobility and embedded mobility.

0.1.2. To explain and compare these mobility schemes by defining and comparing them on several **features**: type of curriculum collaboration and design and course packages, requirements with respect to format, number of agreements and partnerships, topology of required networks, types of mobility, admission and selection criteria, quality assurance, relation with the dimension of research and innovation, requirements with respect to involvement of staff, logistic support and management costs.

0.1.3. To argue that these **different types of schemes can co-exist simultaneously and concurrently**, in the sense that they are complementary and non-exclusive. The paper offers different models, in which partners in mobility schemes can facilitate their intended cooperation in a way that serves their own interests and that of their students, researchers and professors. LERU members have experiences in all of these mobility schemes. In this paper, we articulate the kinds of approaches that have proven to be sucessful. The 'mobility scheme' and their 'features' that we elaborate on, also provide a **toolbox,** that can be used to **design and assess new and existing mobility schemes**.

0.1.4. To formulate **recommendations**, both documentary/exploratory ones and programmatory ones, for policy makers at the institutional level, at national and European levels, and for educational programme designers.

0.2. Research-intensive universities maintain dense networks of international research links over all disciplines. They are inherently international in their outlook and approach to academic work, as evidenced in their recruitment of students, researchers and academics. In addition, there is increasing internationalisation at undergraduate level. In the recent past, LERU has argued already that research collaboration in general should and could be exploited better **to articulate international educational collaborations and intensify student mobility** to achieve excellence in education.

0.3. In this paper, we discuss three models of student mobility:

0.3.1. **Exchange mobility:** in which students themselves choose for an experience abroad for a short or longer period of time, at a host institution, according to an individual mobility arrangement between the host and the home institution. The prototypical example here is mobility as funded by the ERASMUS programme, which we will also discuss in some detail.

0.3.2. **Networked mobility and curricula**: One university or a university education programme or a faculty or department makes a network (e.g.

'star-shaped', with itself in the centre), with several partners, with itself in the centre. The 'centre university' is in demand to send its own students for a certain period of time to follow (part of) a curriculum abroad, which is supplied by the partners in the networked curriculum.

0.3.3. **Embedded mobility and curricula**, in which a limited number of partners (faculties, departments, programmes) partner up in a consortium (e.g. 'ring-shaped') of strategic partnerships, in which students then 'rotate' and follow parts of their educational trajectory subsequently in two or more partner institutions, while students of those partner institutions do the same. The curriculum is fully synchronised.

We will call 'networked' and 'embedded' mobility, 'structured' as they obviously require and provide more structure in their implementation.

0.4. For **students**, especially undergraduates, the main drivers for an international experience abroad, center around objectives as the opportunity to live abroad, the opportunity to learn and improve foreign languages, the exposure to cultural diversity in different cultures, improving future employabity, etc. This set of objectives corresponds best to the **'exchange' mobility scheme**, and the initiative for the international experience is basically taken by the student him/herself. A prototypical example of such a mobility scheme is the ERASMUS programme.

0.5. For **academics in a research intensive university**, the main objective for seeking international collaboration, is research quality, for which they intend to cooperate with the best and most appropriate colleagues and/or research 'peers'. In this endeavour, **networked and embedded mobility schemes** might prove more useful and effective, provided the initiative is taken and organised by the academics themselves, and provided they are sufficiently supported administratively and logistically to set up such mobility schemes.

0.6. In **embedded mobility schemes, academics organise a common educational program, around a specific scientific field or theme**. Programmes best suited for embedded mobility are typically more research driven (e.g. the Erasmus Mundus programme on Nanotechnology between three European research teams), in which the complementarity in scientific expertise, technological logistics and equipment, can be fully exploited. Other examples are programmes that correspond to small scientific fields or that are highly specialised (so-called 'orchid-disciplines'). Yet another example are PhD programmes that are developed within so-called doctoral schools.

0.7. **Students participate in such an embedded mobility scheme mainly for thematic or scientific reasons**, but at the same time experience the cultural objectives mentioned above, as they will 'rotate' over the several locations of the partners between which the programme is organised. However, we expect that students participating in embedded mobility are mainly content driven, and therefore their profiles will be more consistent within one programme (scientific discipline, language, etc.). Maybe more than in 'exchange mobility schemes', excellence could be expected from the participating students in embedded mobility schemes, as additionally certain requirements for participation could be imposed

(quality of motivation, selection by examination/admission boards, language and skills proficiency, etc.).

0.8. One of the advantages of structured (and especially embedded) mobility schemes could be **the linkage between capacity building and mobility**. Indeed, exhange mobility schemes concentrate on the objectives of mobility *per se* (the individual experience for the student) while structured mobility schemes (embedded in particular) emanate from academics who collectively design a consistent, thematic curriculum, hence concentrating on topical, content driven objectives in which mobility objectives follow automatically. In this respect, on a longer term, such structured mobility schemes could be accessible to undergraduates, master and PhD students, and staff alike, all within the same focus domain of research, provided the academics involved desire to open up and enlarge the scheme.

0.9. Clearly, **the design of mobility schemes can differ for undergraduate and graduate programs**, **and for different disciplines and their level of specialisation**. The features of the three mobility schemes we discuss here, generate a continuum of models for curriculum collaboration and mobility, of which each has a particular fit to the collaboration envisaged according to the opportunity analysis made by academics and programme managers. The 'exchange model' applies to individual mobility, which *in se* requires only limited collaboration. The second (networked) and third (embedded) model aim at more structured mobility, which requires stronger agreements and collaborations at the curriculum level.

0.10. The ideas of this paper blend in well with the recently launched **Erasmus for All** program for 2014-2020 by the European commission, which contains three key actions (I: Learning mobility of individuals, II: Cooperation for innovation and good practices, III: Support for policy reform). Society as a whole has become international and global in all possible dimensions. University programmes should reflect these developments and support students in growing into this international knowledge environment and into a borderless society. In particular, research universities are able to enrich their curricula and create new opportunities for students by mobility with their partners in research. Also, by the international nature of their activities, universities can provide a rich, international learning experience for their students. At the European policy level, the new programme 2014-2020 will support not only individual mobility as in the old Erasmus scheme, but also strategic collaborations between university programs in order to create better opportunities and a better learning experience for students.

0.11. In particular, we recommend that Erasmus for All should provide **sufficient flexibility in funding each of the three mobility schemes** discussed, and variations thereof. In particular, the funding should provide enough **means for administrative, organisational and logistic support for programme managers and academics that decide to engage into structured mobility schemes**.

0.12. In addition, we recommend that more attention should be paid to the **good academic standing and academic record of students** desiring to participate in any of the mobility schemes mentioned. The objectives of funding mobility schemes should emphasize **qualitative criteria**, rather than just quantitative (i.e. number of students) ones.

I.   WHY INTERNATIONAL MOBILITY MATTERS

1. In research-intensive universities, high-quality teaching is immersed in an environment of international and competitive research. At these universities, research, education and service to society interact intensively and reinforce each other. Through research, new knowledge is generated, which is the ultimate source of innovation in society. Through teaching, knowledge is disseminated and young people are intensively trained to be aware of the frontiers of human understanding[1].

2. Never before was knowledge so easily transferred, just by a click of the mouse, from one side of the globe to the other one. Yet, there is an increasing need for researchers to interact, not only virtually via the internet and social media, but also physically, in one-to-one bilateral contacts, at scientific workshops and conferences and at dedicated summer schools. This truly global character of science is yet another manifestation of the fact that mobility has become an essential feature in many dimensions of modern life, not only in science and technology, but also in business, in culture and in leisure.

3. In particular, **mobility of students, teachers and researchers has become an essential driver of innovation and creativity**, and the quality of research at our universities will increasingly depend on the **professionalisation of our international recruitment** and selection efforts on the international talent markets.

4. Similarly, those institutions that are **open to international students and researchers** will experience how this confrontation with 'diversity of viewpoints', enriches scientific discussions and developments, improves the effectiveness of discovery processes, and positively influences decision-making amongst the leadership.

5. In short, we definitely realise that mobility will play a crucial role in science, technology, industry, business, politics, culture and all possible dimensions of a global society. When we take into account our responsibility towards society for training students that are aware of the challenges and opportunities of mobility, we can ask ourselves whether our current educational programmes at our universities, are sufficiently well developed in providing each student with such awareness.

6. But increased mobility of students, researchers and staff also matters from a more 'educational' and 'cultural' point of view: the development of intercultural competencies, enabling students to embrace differences without feeling threatened in their own cultural identity, the opportunities to learn to master adequate attitudes and skills to function optimally in a globalised world.

7. In the recent past, LERU has argued already that research collaboration in general should and could be exploited better **to articulate international educational collaborations and intensify student mobility** to achieve excellence in education[2].

8. This blends well into recent trends in internationalisation policy of Higher Education Institutions, as elaborated on in the recent issue of the International Focus Newsletter of the

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[1] See www.leru.org

[2] See: Geoffrey Boulton and Colin Lucas, *What are universities for?,* LERU Position Paper, September 2008, downloadable at www.leru.org.

UK HE International Unit[3]. It is found that increasingly, institutions group themselves in **international consortia and networks** that offer new and sustainable ways of harnessing international opportunities. Besides research collaborations, increasingly, teaching and curriculum collaborations are set up across the partner universities. As a matter of fact, the international strategy of many higher education institutions is currently being revised to benefit from these international consortia and networks.

9. In this paper, we launch the notion of **'structured mobility and curricula'** as opposed to 'Exchange Mobility' (of which the successful Erasmus programme is a prominent example). Structured mobility can take on two forms:

   o **Networked mobility and curricula**: One university or a university education programme or a faculty or department makes a network (for instance 'star-shaped' with itself in the centre) with several partners. The 'centre university' is in demand to send its own students for a certain period of time to follow (part of) a curriculum abroad, which is supplied by the partners in the networked curriculum.

   o **Embedded mobility and curricula**, in which a limited number of universities (faculties, departments, programmes) partner up in a consortium (for instance 'ring-shaped') - strategic partnerships - in which students then 'rotate' and follow parts of their educational trajectory subsequently in two or more partner institutions, while students of those partner institution do the same. The curriculum is fully synchronised.

10. This paper is organised as follows: In Section II, we briefly assess the current ERASMUS programme and argue why it is reaching its limits. We briefly elaborate on the *Erasmus for All* programme that was recently launched by the European Commission. In Section III, we launch a taxonomy of three different types of student mobility schemes, which we compare in relation to one another using several qualitative features. In Section IV, we argue that research-intensive university can benefit considerably from running structured mobility schemes with a limited number of strategic partners, while in Section V, we treat benefits from such schemes for institutions, students, and staff and also consider the logistic and management point of view. Finally, in Section V, we provide an list of recommendations for national and European authorities, as well as for universities and programme managers.

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[3] International Focus Newsletter of the UK HE International Unit, Issue 82, July 2012, downloadable at http://www.international.ac.uk/media/1682653/International_Focus_82.pdf

II.   EUROPEAN COMMISSION MOBILITY POLICY

In this Section, we briefly assess ERASMUS (Section II.1.) and also provide a short survey of the context and objectives created by the recently announced ERASMUS FOR ALL programme(Section II.2.).

II.1. ASSESSING ERASMUS

11. The systems of **student exchange are a strong asset** of the European higher education system. Since 1987, the European Commission has been running **Erasmus[4]** as one of its most successful programmes. More than 2,5 million students have participated in exchange schemes since then. Through Erasmus, exchange mobility has even become the edge of internationalisation at most European universities. In the framework of international cooperation, the European Commission has extended mobility schemes to other continents, also following an increasing demand of universities and students[5].

12. Rather consistently over all countries throughout Europe, **reasons to study abroad,** in no particular order, for students, are the opportunity to live abroad, the opportunity to learn or improve a foreign language, the opportunity to meet new people, the opportunity to develop soft skills i.e. adaptability, social interactivity, improved future employability.
However, it is only a minority of students that decides to participate in Erasmus mobility because of the good alignment with the curriculum at the home institution[6]. This for sure is a pity as we will demonstrate below.

13. The Erasmus programme is reaching its limits because of several reasons[7]:

    13.1.   The participation of students in mobility schemes, while on the rise, is still too low. Several barriers persist such as thresholds induced by socio-economic background and financial reasons, socially induced thresholds (family and personal relationships), insufficient information and awareness, recognition issues of diploma's and credits, an imminent danger for study delay, and eventually also the weight of administrative burden[8].

    13.2.   The budget allocated to Erasmus, both from Europe and from national agencies, does not increase proportionally with the number of participants in it. This implies that the typical individual Erasmus grant on average has been decreasing over the years.

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[4] **Eu**R**o**pean Community **A**ction **S**cheme for the **M**obility of **U**niversity **S**tudents. See also http://ec.europa.eu/education/erasmus/history_en.htm and http://ec.europa.eu/education/lifelong-learning-programme/doc80_en.htm

[5] Through the Erasmus Mundus, Action 2 programme, see also http://eacea.ec.europa.eu/erasmus_mundus/programme/action2_en.php.

[6] European Parliament, *Improving the participation to the Erasmus programme*, Study, requested by the European Parliament's Committee on Culture and Education, Directorate-General for Internal Policies, 2010, p.53.

[7] See also Eds. Ulrich Teichler, Irina Ferencz and Bernd Wächter, *Mapping mobility in European higher education, Volume I, Overview and Trends.* Study for the Directorate-General Education and Culture of the European Commission,* 2011, p.8.

[8] European Parliament, ibidem, p. 61.

13.3.   Even when new incentives would be available to achieve the European objective of 20 % student mobility by 2020[9], the question remains how the other 80 % of the students will experience internationalisation, apart from 'classical' *'internationalisation @ home'* initiatives.

13.4.   It has often been argued that virtual mobility could contribute to reaching the 20 % goal, as it can indeed offer a valuable alternative for physical mobility, facilitating an international experience for those students who encounter social, financial, physical or other thresholds. Of course, this is true for this specific segment of students, but it is equally true that virtual mobility can never completely replace physical mobility.

13.5.   ERASMUS comes with a (huge) administrative overhead often unaccounted for, as in many cases it is hidden in programmes, where often the organisational work is being done by teaching staff/professors and/or by (local) department administrations. In this sense, the required administration is often perceived as a problem. In some countries and institutions, there have been difficulties with an imbalance of inflow and outflow of Erasmus students and with host institutions to find the resources in some cases.

13.6.   Staff and curriculum management are often not supportive to student mobility, since mobility is often seen, not as an integral part of the curriculum, but as an accommodation for the individual students.

13.7.   Finally, the large number (often hundreds) and the geographically wide scattering of institutional agreements over many partner universities often impedes a coherent, centralised, quality-oriented institutional policy with respect to student mobility.

II.2. EC THINKING ON MOBILITY: ERASMUS FOR ALL

14.   The recently launched **Erasmus for All** program[10] for 2014-2020 seeks to remedy at least some of the deficiencies that we have just outlined. The **Erasmus exchange "new style"** is characterised by more flexibility, will allow for intermittent and shorter mobility periods, and will stimulate the creation of **strategic partnerships at the curriculum level** to develop more structural collaboration and mobility between universities. The following tables give the highlights of the key actions in Erasmus For All:

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[9] The Bologna process 2020 - The European Higher Education Area in the new decade, Communiqué of the Conference of European Ministers responsible for higher education, Leuven and-Louvain-la-Neuve, 2009, p.4

[10] European Commission, Erasmus for All: The EU Programme for Education, Training, Youth and Sport, Communication from the European Commission, Brussels, 23.11.2011, COM(2011) 787 final. See:
http://ec.europa.eu/education/erasmus-for-all/
See also: Council of the European Union, Proposal for a regulation of the European Parliament and of the Council establishing "Erasmus for All", 12 May 2012.

Key action 1:	Key action 2:	Key action 3:
Learning mobility of individuals	**Co-operation for innovation and good practices**	**Support for policy reform**
-Staff: teachers, trainers, school leaders and youth workers *- Students: HE students (including joint/double degrees) and VET Students* *- Masters Students: Erasmus Masters via a new loan guarantee mechanism* *- Youth mobility: volunteering and youth exchanges* *-International dimension: HE mobility for EU and non-EU beneficiaries*	*- Strategic partnerships between education institutions (or between youth organisations) and/or relevant actors* *- 'Knowledge Alliances': Large-scale partnerships between higher education / training institutions and businesses* *- 'Sector Skills Alliances'* *- IT support platforms, including e-Twinning* *- International dimension: Capacity building in third countries, focus on Neighbourhood countries*	*- Support to Open Method of Coordination (ET 2020, EU youth strategy) and EU 2020* *- EU transparency tools: valorisation and implementation* *- Policy dialogue with stakeholders,* *- International dimension: Policy dialogue with third countries and international organisations*

15. About 60% of the Erasmus for All budget is reserved for individual mobility initiatives, 25% will go to cooperations for innovation, which includes strategic partnerships.

16. Within these strategic partnerships, a variety of collaboration formats can be envisaged, that fulfill joint objectives.

    16.1. Specific mobility arrangements can be made at the level of subject areas and options, courses and course units, seminars, intensive programmes, summer schools, projects, internships, thesis work, etc...

    16.2. Mobility can be long or short, continuous or intermittent.

    16.3. These formats can be supported through ICT frameworks, facilitating international teaching and learning and online or hybrid/blended mobility with a high interaction level.

    16.4. Also, non-university research institutions and corporate partners can be included in these collaborations and mobility schemes.

17. All of these instruments facilitate the development of a **diversified institutional mobility policy** for the curriculum, which is goal-oriented, flexible and scalable.

18. This all connects well with the **Europe 2020 Strategy**[11] and its implications on higher education policy, including the integration of research-innovation-education in the knowledge triangle. Also, this blends in with the **Modernisation Agenda** for Higher Education (2006, 2011), especially in objectives such as improving the quality and relevance of teaching and researcher training, providing more opportunities for students to gain additional skills through study or training abroad, and encouraging cross-border co-operation to boost higher education performance[12].

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[11] See: http://ec.europa.eu/europe2020/europe-2020-in-a-nutshell/priorities/index_en.htm.
[12] See: http://ec.europa.eu/education/higher-education/agenda_en.htm

III. A TAXONOMY OF THREE MODELS OF STUDENT MOBILITY SCHEMES

Having briefly assessed the pro's and con's of ERASMUS and the opportunities created by Erasmus for All, we are now ready to discuss a taxonomy of different mobility schemes, which we will compare with respect to several qualitative features, such as objectives, participation of students, impact on the curriculum, type of partnership required, the relation with research intensity, the involvement of staff, parameters that characterise the quality of the mobility experience and managerial issues, etc.

Using these qualitative features, we will treat three distinct types of mobility and collaboration:

III.1. Exchange mobility and collaboration;

III.2. Networked mobility and collaboration;

III.3. Embedded mobility and collaboration.

In practice, it is perfectly well possible that these three types of mobility and collaboration co-exist in one and the same university, as it might be involved in several agreements and consortia at once.

Although we describe three distinct types of mobility and collaboration schemes, with qualitative characterizing features, in reality one can design mobility schemes that are characterised by a mixture - a continuum - of the typifying features that we describe here.

III.1. EXCHANGE MOBILITY AND COLLABORATION

19. Description of exchange mobility and collaboration:

19.1. In exchange curricula and exchange mobility, students choose a study abroad at a host university, according to an ***individual mobility arrangement (type Erasmus 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 ultimately 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.

19.2. From an organisational point of view, exchange collaboration and mobility are ***flexible***. They are relatively easy to implement, even when universities are not very much acquainted with each other, but nevertheless can rely on a sufficient level of trust. Whereas until today a minimum stay abroad of three months was required from exchange students, in the future shorter and intermittent periods would be admitted in the Erasmus programme. This makes it even more flexible and helps to ***diversify mobility formats,*** which can be used to achieve the objectives of the exchange.

19.3. Also, from a students' perspective, exchange mobility can contribute to the ***personalisation of the curriculum***.

20. Objectives:

20.1. The objectives of exchange collaboration and mobility mainly concern **the individual student**, not the curriculum. Through **an intensive immersion** in another country, the student gains an international /intercultural experience, (s)he learns another language and acquires social skills, and (s)he benefits from a personalised, international curriculum, contributing to the student's later employability.

20.2. Exchange collaborations and exchange mobility lead to enriched learning opportunities for students. In research universities, this mobility may link to **specific topics involving research and innovation**, i.e. specific theory and research domains, methodology, research seminars, innovation projects, thesis work, etc., although the universities involved do not necessarily design detailed mobility paths in advance.

21. Participation of students:

21.1. Until now, a relatively **small number of students** has been involved in student exchange, even if the European number in absolute terms exceeds 2,5 million of students. When the European benchmark of 20% mobility would be reached, this still leaves out 80% of the students, even when in many curricula international learning is regarded as an important objective "for all".

21.2. This relatively low participation can be related to personal factors (cfr. supra), but it is also due to organisational issues. Long term exchange for large numbers of students in the average curriculum is impossible to arrange, i.e. due to logistics (i.e. housing) and shortage of financial means (e.g. student grants).

21.3. Another reason for low participation can be the curriculum itself. When exchange is not an organic part of the curriculum, students nor staff 'feel' an academic need for it. In some countries, there is an increasing and formalised emphasis on learning outcomes, which sometimes complicates exchange mobility. A condition for increasing mobility numbers is that mobility becomes an integral part of a curricular framework.

22. Impact on the curriculum:

22.1. In exchange collaboration and mobility, **no substantial structural adaptation to the curriculum** is required. Exchange mobility basically is giving students the opportunity of having a different learning experience abroad on an individual basis. Often language facilities are provided in the host program, in order to better accommodate incoming students.

22.2. Despite this lack of structural impact on the programmes, exchange mobility can certainly contribute to the curriculum, i.e. when it is used to create

"internationalisation at home" learning activities in the classroom. However, more often than not, this only contributes rather co-incidentally to the internationalisation of the curriculum.

22.3. Because of the low impact on the curriculum, exchange collaboration and mobility can *be flexibly organised in nearly all curricula*.

22.4. From a student's perspective, there is an *indirect impact on the curriculum*, since a student is allowed to follow a different, but equivalent part of his curriculum at another university. Here, an opportunity is given *to personalise the curriculum*.

23. The quality of exchange collaboration and exchange mobility are to be evaluated on the basis of the *mobility experience and the learning outcomes of individual students*. When students assess their mobility experience, typically they show a high satisfaction in terms of the experience of living abroad, of social and cultural learning, of personal development and sharpening their "soft skills". *Learning outcomes* are enriched by language and communication skills. Academic learning outcomes are generally experienced to be positive as far as the credit points and records show. Recognition issues in some universities reflect probably a lack of equivalence with regard to academic objectives between the universities concerned, due to inadequately negotiated partnerships. Probably also the opportunities and possibilities offered by virtual mobility, are still underestimated: ICT-tools could help to support exchange mobility before, during and after the physical mobility period, and link it in with internationalisation@home initiatives.

24. The *business model* for exchange curricula and mobility is based on and inspired by the Erasmus scheme: bilateral agreements between the universities concerned, learning agreements for students and tuition fee neutrality. A mobility balance between home and host students is pursued.

25. The *management* has evolved from a curriculum-based management ("international programme committees") to an institutional level. In practice, the institutional management serves only as a link between the faculties and programmes to the funding channels of the European Commission. Related to the number of students involved, the *management cost* for exchange programmes is often underestimated, or even unaccounted for, as it requires a considerable amount of administrative staff efforts and time. Academic staff time is limited to the preparation of mobility agreements.

III.2. NETWORKED MOBILITY AND COLLABORATION

26. Description of networked mobility and collaboration:

26.1. In networked curricula and mobility, each partner in the network runs its home curriculum independently of the other partners, but structural mobility is part of the program. "Mobility windows" are created in the curriculum as they align with *course packages and mobility paths in partner universities, designed in advance and intrinsically related to the curriculum.* Hence, each curriculum is extended with courses or course packages in other universities, which enlarge and enrich the curriculum that can be chosen by the student.

26.2. Because of the prior intervention of the programme management, networked mobility is eventually less flexible and less personalised than individual exchange, but the ***course packages offer learning opportunities that optimally fit with the home curriculum***. They consist of diverse learning activities like complementary major or minor courses, specialisation courses, research internships, joint projects or thesis work.

26.3. The ***size of the course packages*** can vary in time from a single course unit to a complete major or minor programme. All depends on the objectives of the collaboration and the role given to mobility. The focus is primarily directed on academic objectives in particular subject areas. Sometimes, only one or two courses, seminars or summer schools are needed to make the home curriculum more comprehensive or to create a real international experience. In these cases, the collaboration is limited, but still significant for the students. In other cases, complete study options and/or related research places are offered.

26.4. Partners in the collaboration expect and stimulate groups of interested students to follow these packages as a diversification of the home programme. The ***admission to a course package*** is given by the host university in agreement with the home university.

26.5. Networks should consist of a limited number of ***partners*** in order to sustain an active link with research and innovation. A long term commitment is required, preferentially based on a strong cooperation in research or innovation. Enterprises and companies can be part of these networks as they strengthen the link with innovation.

26.6. The management of the collaboration is not that complex, since basically the ***Erasmus mobility*** rules can be applied, once the course packages are defined. The ECTS system guarantees the ***credit transfer and the recognition*** of courses just as in the Erasmus program. A ***double certificate or double degree*** can possibly be granted, since the scheme is based on two independent curricula, delivering to each other's students a substantial and coherent course package. This would be more appropriate than a joint degree, since the programme is not a common or joint programme.

27. Objectives:

27.1. A typical objective of networked curricula is to offer students a ***broader variety of subject areas or specialisations*** than the home university can offer on its own. Therefore, the course packages should reflect research and innovation strengths, which are complementary to the home university.

27.2. Also, networked mobility creates opportunities for students to benefit from ***an international experience*** by educational programmes abroad, which are closely related to international research or innovation activities and communities, in which the home university is taking part.

27.3. Networked mobility can also ***serve institutional goals***. By sharing complementary subject areas, the profile of a curriculum can be broadened

and strengthened. This leads to sustainable collaborations and networking with partner universities.

28. Participations of students:

28.1.   The rationale behind networked curricula is that the average student is given a structural opportunity to follow a complementary course packages in a partner university. Staff and programme management ***are committed to organise student mobility as part of the curriculum***. Hence, the target number of students in networked mobility could be between 20 and 100%, depending on the policy of the curriculum and the size of the course packages. It is expected that students will feel more reassured that recognition is not an issue anymore and that their study time will not be prolonged[13].

28.2.   A networked curriculum is attractive for ***students from abroad*** (e.g. from outside Europe) as they can benefit from more diversified, but coherent learning opportunities and pre-designed mobility schemes that bring them in different European countries. The quality of the curriculum is enriched by the broader learning opportunities and the multi-national experience.

29. Impact on the curriculum:

29.1.   There is a ***clear impact on the curriculum,*** as it is enriched by external courses, increasing the range of courses and the learning opportunities available for students. These external course units are considered as a systemic part of the home curriculum as is the international experience for students, taking part in the scheme.

29.2.   It is possible to ***modulate the dimensions*** of the collaboration. Mobility packages and periods can vary according to the curriculum objectives, ranging from one course unit to a complete option or specialisation. Networked mobility is applicable for all programmes that want to organise a structured international experience for students.

29.3.   Also commercial companies, industry, government agencies and non-university research institutions can have an input in the curriculum by co-organising specific learning activities, like research and innovation seminars or internships. Hence, it makes sense that they are part of the network as 'societal' stakeholders. However, they can have no formalised input to any curriculum as the design of academic curricula remains the exclusive prerogative of universities as part of their academic responsibility.

29.4.   To enhance flexibility and scalability of the curriculum, ***ICT support*** can facilitate the organisation of a networked curriculum and include virtual/blended mobility schemes.

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[13] Eds. Ulrich Teichler, Irina Ferencz and Bernd Wächter, *Mapping mobility in European higher education, Volume I, Overview and Trends.* Study for the Directorate-General Education and Culture of the European Commission, 2011, p.183-184

30. Quality:

Three quality aspects should be covered and monitored in networked curricula and mobility: the quality of the enriched curriculum, the quality of the international learning experience and the institutional benefits.

30.1. The *quality of the curriculum* is improved by broadening and/or deepening the curriculum through an extension of content/course modules, brought in by partner universities or enterprises on the basis of complementarity or common strengths.

30.2. The *international experience* is structured along pre-designed course packages in established partnerships. This should result in broadening and deepening learning, international collaboration skills, learning and working in (research) communities, etc. More than in exchange mobility, students participating in structured mobility are 'content-seekers' rather than international experience seekers.

30.3. At the *institutional level,* networked curricula may contribute to the international profile and the quality of the curricula of the university. In this way, a university can organise a broader range of programmes, based on the strengths of and complementarities in collaborations in research and innovation.

31. Management and business model:

31.1. Once the content of a networked curriculum is developed by the partners, *the implementation of networked mobility is easier to manage* than is the case with exchange mobility, because fewer universities are involved and the mobility paths are pre-structured. There is however more effort required in the preparatory design and in the development of the networked mobility paths, which represents an investment in terms of not only administrative, but also academic staff members.

31.2. However, *sharing subject areas* might decrease the institutional cost of networked curricula, because subjects or learning activities are distributed over the network.

31.3. The *business model* of networked curricula and mobility might be based on the Erasmus scheme like for exchange programmes. Since networked curricula emanate from collaboration at the curriculum level, it is even more likely that the mobility of students will be balanced. Hence, also this collaboration might probably be tuition fee neutral.

31.4. It is clear that a networked curriculum and mobility require *a stronger mutual commitment* than bilateral exchange partnerships. Therefore, networked curricula should be built with reliable, preferential partners that already collaborate in research or innovation.

32. Description of embedded mobility and collaboration:

32.1.   In the case of embedded curricula and mobility, students choose for a joint programme, 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***. Basically, the current ***Erasmus Mundus model*** might help as an inspirational conceptual framework for this type collaboration.

32.2.   In this type of mobility scheme, mobility is conceived along pre-designed mobility paths (individual study programmes (ISP's), that explicitly imply mobility. ***Joint certificates/degrees*** might be delivered, because only one single programme is organised.

32.3.   It is clear that such intensive collaborations are realistic and feasible ***only for a limited number of specific, strategically selected international curricula***: niche specialisations, comparative approaches, international subject areas and top class international curricula, which also recruit international students from outside the partnership.

33. Objectives:

33.1.   An integrated curriculum with embedded mobility paths will be organised in case there are **opportunities in a multi-partner collaboration,** because of the expertise and disciplines required or the curriculum profile chosen. A broader range of expertise and disciplines are made available by the collaboration as well as in specific links with research or innovation (e.g. in a partner university or in non-university institutions or enterprises).

33.2.   Students will experience a common approach to the subject area and will be faced with a rich diversity of themes and methods. They are part of a multi-campus teaching and learning environment in different social and cultural contexts and different languages. As integrated curricula will only be organised for selected programmes, students will benefit, through the complementarity and collaboration between universities, from **a top international experience**. Also, these programmes will lead to unique specialisations.

33.3.   Embedded mobility curricula offer ***internationally unique programmes***, thanks to collaborations in research and innovation in areas which otherwise are not covered, meeting very specific societal needs and delivering internationally recognised added value.

34. Participation:

34.1. It might be clear that international curriculum collaboration with structured mobility can definitely not be implemented in all university programmes, because of organisational and logistic aspects. This type of mobility scheme and curricula only applies **for well-chosen programmes**, at the undergraduate and graduate level, characterised by a **strong underlying basis of collaboration in research and innovation**. Conversely, precisely these programmes should seriously consider adding an extra international dimension. Since mobility paths are embedded in the curriculum, probably a majority of students, even up to 100% in a classroom, will participate in mobility, when it is organised and structured by the curriculum

34.2. In integrated curricula, mobility is embedded in the curriculum along specific course packages and hence, all students can benefit from this mobility scheme. Since students belong to a multi-university programme, the distinction between home and host universities and outgoing (home) and incoming students is not necessarily relevant. Students are 'shared' and there are common admission and selection procedures as well as common examination rules.

34.3. Because of the level of specialisation, these programmes will attract probably smaller numbers of **home students**. On the other hand, because of the high quality and pre-defined mobility schemes of integrated programmes, these will be very attractive for **international students.**

35. Impact on the curriculum:

35.1. As this is a joint curriculum, the collaboration has an ***impact on all aspects of the curriculum***. Even more than networked curricula, ***integrated curricula and mobility need to be jointly designed.*** This will start with the acceptance of common objectives, based on an analysis of the needs and on current scientific and professional developments. The curriculum, including the mobility paths based on complementary strengths, is subject to collaborative development that will take time and effort before implementation, especially by academic staff and researchers, supported by administrative staff.

35.2. The curriculum can be organised with typically a common part (truncus communis) in one university, completed by complementary options in different universities. Also other curriculum structures are possible (for example a ring-shaped structure with consecutive parts), depending on the objectives and mobility paths.

35.3. The curriculum is often built on courses and modules already available in other curricula at the partner universities. However, because they have become part of a new, trans-institutional programme, ***the relative positioning of these courses and staff will change***.

35.4. ***ICT environments***, including online/blended mobility can strengthen the integration and optimise the organisation and quality of integrated programmes.

36. Quality:

The added value of an integrated curriculum could manifest itself in the quality of the curriculum, the quality of the learning experience and the added value at the institutional level. Indeed, integrated curricula by themselves have no built-in guarantee for quality assurance (nor do other mobility schemes). However, integrated curricula in embedded mobility schemes have some inherent quality improving mechanisms, that are not necessarily shared by other mobility schemes:

36.1. The ***quality of the curriculum*** is facilitated by interactions, agreements, finetunings and synergies between different partners. Strengths and complementarities are integrated in one, multi-partner curriculum. A joint curriculum requires more coordination, which therefore probably improves the overall quality of the curriculum.

36.2. The ***quality of the international experience*** for the student is assumably better, as all teaching and learning activities take place in an environment that is international by construction, and typically centers around a common, scientific theme or discipline.

36.3. At the ***institutional level***, integrated curricula may contribute to the quality of the international educational provisions and international strategies of a university. They could be highly inspirational for other (local) educational programmes and if succesful, could develop into a role model in the educational biotope of the university.

37. Management and business model:

37.1. For an integrated program, a ***joint management level in a consortium is required,*** as it has to deal with all aspects of international collaborative course development and implementation, including mobility, admission and selection, assessment and examination, and the awarding of degrees. Also, the business model, the tuition fee structure, the sustainability of the curriculum, are subjected to a joint policy.

37.2. Because the management of an integrated programme is dealing with all aspects of the programme and the student mobility is 100%, the **development and *implementation cost*** of integrated curricula is high. On the other hand, through ***sharing course modules***, the institutional cost will also decrease. The additional cost concerns more the student, i.e. additional travel and subsistence costs.

37.3. Integrated programmes and mobility require a **strong partnership**, based on ongoing collaboration strengths in research and innovation with agreements for at least 5 years. A consortium is preferably small and it can include non-university organisations.

38. The following table lists the three distinct types of mobility schemes, which we have described (the columns of the table), and compares them by reference to qualitative features, some of which have been described already , and introduces some other ones that have not yet been discussed (the rows of the table):

|	Exchange curricula and mobility	Networked curricula and mobility	Embedded curricula and mobility
Type of curriculum collaboration	No curriculum collaboration	Tuning for mobility course packages mainly, which are part of independent curricula	A single, joint curriculum with agreed mobility flows within the partnership
Type and number of agreements	Many bilateral agreements	Number of partners in one network might be up to 10; Several networks possible	Rather limited number with well selected trusted partners
Type of network	Dense network with many bilateral links	'Star-shaped' network: Demand node in centre, supply nodes around it; Students 'belong' to the centre	'Ring-shaped' network; Students move around in the ring
Type of Mobility	Individual exchange mobility between independent programmes in many selected universities	Networked mobility between independent programmes	Embedded/integrated mobility within a single, integrated programme
Type of course package for mobility	An individual course package, selected by student and staff of the home university	Pre-defined and agreed course packages, offered by respective programmes in the partnership	Various pre-defined course packages, offered by respective partners, which are integral part of the joint programme
Type of partnership, number of partners, co-ownership	Partner universities with bilateral agreements; possibly many partners; no co-ownership	Network, bilateral or multilateral agreement; a limited number of partners; no co-ownership	Strategic alliance, led by a consortium; a small number of partners; co-ownership by the consortium partners
Collaborative curriculum design	No collaborative curriculum design, only agreements on mobility	Collaborative curriculum design for the mobility packages only, emphasis on differentiation	Collaborative design for the entire curriculum, emphasis on common identity and differentiation

Relationship with research and innovation	Possibly loose collaboration links	Course packages reflect preferably collaboration links in research and innovation	Joint programme should be based on links in research and innovation and broader needs analysis
Involvement of staff	Staff accommodates incoming students; Administrative support; Little additional work for academic staff;	Possibly, small repositioning of staff and courses for the mobility course package only. Staff accommodates incoming students.	Repositioning of staff and courses in the joint curriculum according to overall objectives
Flexibility by ICT platforms, blended teaching and learning provisions	Facilitating participation of higher number of students; ICT-tools before, during and after stay abroad increasingly important.	Facilitating participation of higher number of students and for overall flexible and cost-effective solutions	Indispensable for full participation of students and overall cost-effectiveness. Basic for joint teaching and learning space
Admission and selection	Mainly by home university within the terms of a bilateral agreement	Admission and selection by host university for the course package (on proposal of home university)	Common admission and selection procedures for the entire programme
Typical degree or certificate awarded	Non-degree seekers; only credit recognition	Possible double degree	Possible joint degree
Proportion of students involved in mobility	20% benchmark	Plus 20 %, strongly increased mobility; Target between 20 - 100 %	In principle for all students, mobility is inherent to the programme
Quality assurance	Primarily by host university; questionnaires to outgoing and incoming students	Primarily by host university; questionnaires to outgoing and incoming students	Joint quality assurance and accreditation procedures
Attractiveness for third partners (worldwide)	No	Moderately	Strong
Sharing/pooling resources, saving institutional costs	No	Moderately	Very strong
Committment of partners	Bilateral, rather weak	Bilateral, strong	Very strong committment
Management cost	Under control (though often unaccounted for)	Moderate	Possibly larger cost involved

IV.   WHY BOTHER ABOUT STRUCTURED MOBILITY ?

In Section IV.1, we argue that structured mobility schemes can create more opportunities for certain types of programmes at research intensive universities. In Section IV.2 we elaborate on some policy issues, discuss the benefits of structured mobility schemes in Section IV.3 for students, in Section IV.4 for staff members, and in Section IV.5 for the participating institutions. In Section IV.6 we discuss some logistic advantages, while managerial aspects are discussed in Section IV.7.

IV.1. STRUCTURED MOBILITY SCHEMES CREATE NEW OPPORTUNITIES

39. In **embedded mobility schemes** for instance, academics organise a common educational program, around a specific scientific field or theme. Programmes best suited for embedded mobility are typically more research driven (e.g. the Erasmus Mundus programme on Nanotechnology between three European research teams), in which the complementarity in scientific expertise, technological logistics and equipment, can be fully exploited. Other examples are programmes that correspond to small scientific fields or that are highly specialised (so-called 'orchid-disciplines').

40. For **academics in a research intensive university**, the main objective for seeking international collaboration, is research quality, for which they intend to cooperate with the best and most appropriate colleagues and/or research 'peers'. In this endeavour, **networked and embedded mobility schemes** might prove more useful and effective, provided the initiative is taken and organised by the academics themselves, and provided they are sufficiently supported administratively and logistically to set up such mobility schemes.

41. Indeed, there is an apparent **gradient on the degree of research-intensiveness and specialisation**, that increases when moving from individual exchange types of mobility, over networked mobility towards embedded mobility schemes.
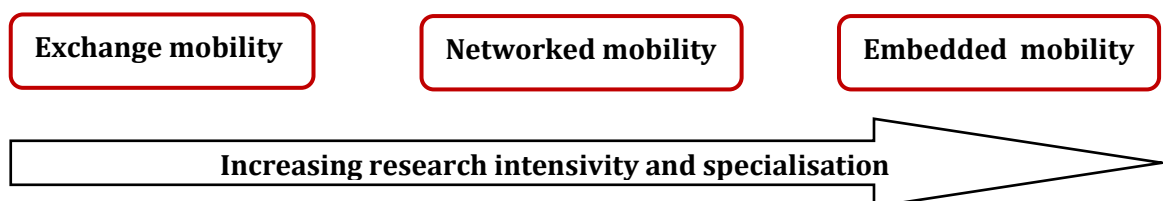
42. In research-intensive universities, many educational programmes are immersed in a top research environment, in which the academics want to excel both in teaching and research. In such programs, students are trained to understand and to interpret research and innovation in their timeframe and in the context of their origin. They gradually develop skills through educational activities which mirror the aspects of research and innovation processes. They learn to collaborate with others to solve complex, interdisciplinary problems. They participate in research activities of staff and they prepare papers or a thesis. They experience the strengths and the limitations of research and innovation. **Research and innovation institutions as well as society at large will benefit from students who experienced excellent education in such strong research environments**.

43. **Students participate in such an embedded mobility scheme mainly for thematic or scientific reasons**, but at the same time experience the cultural objectives mentioned above, as they will 'rotate' over the several locations of the partners between which the programme is organised. However, we expect that students participating in embedded mobility are mainly content driven, and therefore their profiles will be more consistent within one programme (scientific discipline, language, etc.). Maybe more than in 'exchange mobility schemes', excellence could be expected from the participating students in embedded mobility schemes, as additionally certain requirements for participation could be imposed (quality of motivation, selection by examination/admission boards, language and skills proficiency, prerequisites, etc.).

44. Research intensive universities can offer **research internships** in some areas of specialisation, possibly in cooperation with non-university institutions. Collaborative programmes with pre-structured mobility are **appealing** for excellent home and international students and hence potentially contribute to the competitiveness of the educational programmes and the research departments involved. This environment is excellent for **discovering and training talent and for attracting talent from elsewhere**, hence possibly contributing in the long term to the global competitiveness of research intensive universities because of improved opportunities of capacity building.

45. Collaborative curricula and mobility require **strategic partnerships** at the curriculum level. Partners commit to complement each other's programmes and to allow students to the respective mobility paths. By systemic synergies between academics, **a quality leap** is created, with agreed teaching and learning paths for sections of a class, not just for individual students. **It makes not only students, but also curricula transnational**.

46. One of the advantages of structured (and especially embedded) mobility schemes could be **the linkage between capacity building and mobility**. Indeed, exchange mobility schemes concentrate on the objectives of mobility *per se* (the individual experience for the student) while structured mobility schemes (embedded in particular) emanate from academics who collectively design a consistent, thematic curriculum, hence concentrating on topical, content driven objectives in which mobility objectives follow automatically. In this respect, on a longer term, such structured mobility schemes could be accessible to undergraduates, master and PhD students, and staff alike, all within the same focus domain of research, provided the academics involved desire to open up and enlarge the scheme.

47. Through ICT support, mobility can even more be facilitated for all students through the inclusion of virtual components. In doing so, students can participate in seminars, projects, course units jointly organised by all the universities of a partnership. Online and virtual mobility can be combined with physical mobility, which is called 'blended mobility'. While physical mobility is leading to an immersion in an academic culture at another university, in a different societal context, online virtual mobility has specific other advantages: it can simultaneously engage all students in a class, as there are no physical barriers for trans-border communication; It is not only 'almost' independent from the specific location, but also in the 'time-dimension', it is completely flexible (asynchronous, individual, at any moment in time); multiple but similar programmes at different universities can engage simultaneously; students and staff who for one reason or another don't want to get involved in physical mobility, can resort to virtual mobility; there might be other targetted participants such as part-time and/or employed students, students with special needs or students that opt for self-study.

48. Curriculum collaboration and mobility may have an added value for the university as an institution. Indeed, the strategic partnerships involved may possibly contribute to the international position of the university.

IV.2. IMPACT ON POLICY

49. International curriculum collaboration with structured mobility can only be implemented in some university programmes, because of organisational and logistic aspects. Structured mobility schemes only apply **for well-chosen programmes**, at the undergraduate and graduate level, characterised by a strong underlying basis of collaboration in research and innovation. Since mobility paths are constituted by the curriculum, probably a majority of students, even up to 100% in a class, will participate in mobility, when it is organised and structured by the curriculum, depending on the type of collaboration and the related mobility scheme (see below).

50. That research-intensive universities should **invest in the internationalisation of their leadership**, goes without saying. The lack of diversity at the highest level of academic leadership was analysed over several hundreds of leading academic institutions across Europe, USA and Asia[14]. The overwhelming majority of academic leaders in most countries were citizens of those counties, with only 10 % of the leaders being foreign citizens. There are significant differences between regions: In Singapore, 56 % of the academic leaders were identified foreign, reflecting a conscious drive to recruit leading foreign academics in line with a vision to create top-ranked international universities, and the willingness to develop a remuneration strategy for those leaders. In the neighboring countries in South-East Asia, the pattern is exactly opposite (11 % foreign), reflecting internally focus recruitment and promotion processes. In Europe, the academic leadership is only partially international in Switzerland (30 %), Austria (29 %), UK (12 %), Germany (8 %), Benelux (7 %), Scandinavia (3 %). In the USA, in the top academic institutions, the percentage is only 6 %. Not coincidentally, in the smaller countries in Europe (Austria, Switzerland, Benelux), most leaders have spent substantial time abroad. **For all these reasons, intensifying both quantity and quality of student and staff mobility seems like a first necessary step.**

IV.3. BENEFITS FOR STUDENTS

51. In each of the three types of collaboration described, **home students and students from the partnership** are equally taken into account. More structured collaboration will also contribute to the attractiveness of curricula for **international students** from outside the partnership.

52. Students are important stakeholders for international curricula and courses. In a nutshell, specific benefits for students are:

    52.1. Getting an **intercultural experience** by learning in an international environment, with cultural and languages differences, that enlarge their

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[14] In a recent paper 2012 from Egon Zehnder International (Strenghtening the diversity of top academic leaders: Findings and insights from Egon Zehnder International's Global Academic Leadership Surevy).

mindset, stimulate thinking from different scopes and taking into account different views and sensitivities in their communication

52.2. Having **access** to the programmes of partner institutions, learning complementary subjects, taking options for different competence profiles (which eventually are not taught at the home university), related to complementary research and innovation areas.

52.3. Reassured about the quality in the case of **structured mobility (i.e. networked or embedded)**, as these mobility schemes are organised by the curriculum, the credits are mutually recognised and they should not fear an unnecessary prolongation of their study.

52.4. **Learning to collaborate** in international communities (international collaboration skills) related to particular subject areas, research and innovation.

52.5. Having access to **resources** at the partner institution, including libraries, databases, special infrastructure, labs, research reports, facilities, staff.

52.6. Getting prepared for an **international scientific or professional career** (international employability).

IV.4. BENEFITS FOR STAFF

53. A basis requirement for any collaborative programme are the incentives for academic staff. Benefits are basically of an academic nature:

53.1. Structured mobility education **reflects academic work/research** which in essence is international ("knowledge without frontiers"). Staff who are interested in research cooperation, also consider educational cooperation as a professional enrichment.

53.2. Collaborative education is also **reinforcing research and innovation links**, even more when doctoral students are involved in the programme.

53.3. An attractive programme is a **good basis to acquire international students** with whom staff can collaborate later ('capacity building').

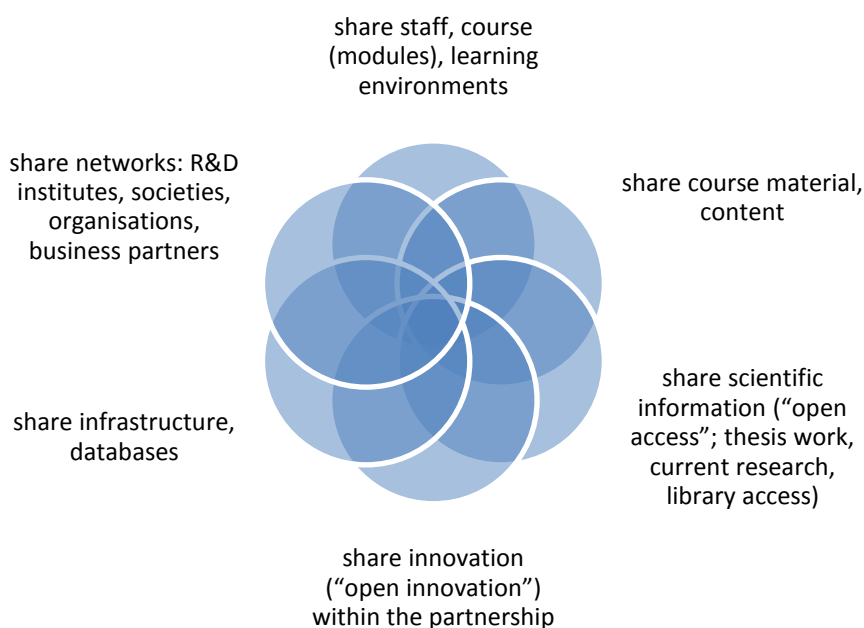53.4. International programmes are **European and global**, which is appealing to staff.

IV.5. INSTITUTIONAL BENEFITS

54. Collaborative curricula and mobility have clear institutional benefits:

   54.1. Collaborative curricula reflect directly the **university's ambitions in high quality teaching** as much as they are involved in international research and innovation.

   54.2. Collaborative curricula facilitate **the educational involvement of non-university stakeholders:** international R&D institutions, companies and organisations, as they are in research and innovation.

   54.3. Collaborative curricula **involve also home students** in an international teaching and learning environment and offer to them opportunities for an attractive mobility path.

   54.4. **Teaching and learning activities can be shared between partners**, which ultimately will lead to a more complete and richer range of courses in a time where universities have to reduce the number of courses.

   54.5. In some cases, programmes and curricula may become more **cost-effective**, i.e. when staff and resources are pooled and shared, especially in areas of specialisation and expensive infrastructure, but not only there. In some other cases, by joining forces and exploiting complementarities, the organisation of certain specialised programmes might become feasible financially, while it is impossible for one university alone to implement. At the other hand, there is also a cost for developing the collaboration, the administration of the scheme and the mobility cost for students (which can be covered by Erasmus grants, see below)

   54.6. Partnership curricula become **more attractive for international students** because of the enriched curriculum and the possibility to participate in pre-designed mobility flows in a strong partnership.

   54.7. Collaborative curricula have an impact on the **international reputation** of a university.

IV.6. LOGISTIC BENEFITS: POOLING RESOURCES

55. Pooling of resources through collaborative programmes can **enrich the learning environment of partner institutions concerned** and make it more powerful. In principle, in a collaborative curriculum, **various components can be shared**: staff, course content (courses, modules), scientific information (current thesis work, research, libraries), innovation (access to R&D, knowledge transfer), infrastructure (computers, research infrastructure, labs, databases, research material, etc.) and networks (organisations, societies, business partners, etc.)

56. However, **collaboration also creates substantive additional costs**, i.e. administration, international travel, accommodation and costs related to specific needs of students on these programmes. Hence, in any collaboration benefits and costs should be balanced.

share staff, course (modules), learning environments

share networks: R&D institutes, societies, organisations, business partners

share course material, content

share scientific information ("open access"; thesis work, current research, library access)

share infrastructure, databases

share innovation ("open innovation") within the partnership

IV.7. MANAGEMENT ASPECTS

57. Up to recently, mobility was mainly the product of working relationships between **individual academics and individual academic departments**. This is certainly the case for exchange mobility and the Erasmus programme. Also for networked and integrated mobility, the initiative is mainly coming from the course and curriculum staff and from the departments, who want to improve their course or programme with partners they trust and from whom they expect complementary expertise.

58. Maybe the **institutional impact becomes more important and issues are raised that affect institutional policies** like the place of the curriculum in the institution, the recognition by national authorities, the delivery of (joint) degrees and certificates, admission and selection criteria, examination rules, quality assurance and accreditation. This requires institutions to be adaptive in their policies and instruments towards collaborative initiatives. Insitutions should facilitate cooperations of various kinds conceived at the curriculum level, meeting the wider interests of staff and students.

59. The more the collaboration shifts from exchange to networking and embedding, the more complex the management becomes as well. This is something that academics who take an initiative in networked or embedded mobility should be aware of. Said in other words, the benefits will not come without an additional effort, for which sufficient administrative, organisational and logistic support should be available (also see remarks below).

60. Recent improvements and the growth of online teaching and learning worldwide will strengthen the opportunities for international curriculum collaboration and mobility. Universities can combine this with physical mobility in blended or hybrid formats. Partners will use increasingly all possible channels of their electronic environment for teaching and learning as they do for research. This will require expert support from teaching and learning services.

V. RECOMMENDATIONS

V.1. RECOMMENDATIONS AT THE EUROPEAN LEVEL

61. At the European level, a lot of attention has been given to the renovation of the programmes for education for 2014-2020. **Erasmus for All** has the potential to renovate the current Erasmus programme and stimulate strategic partnerships that will allow **curriculum collaboration and variety of forms of mobility.** Therefore, LERU welcomes the new degrees of freedom in Erasmus For All, in the three key actions, that will allow to implement structured mobility schemes as proposed in this paper.

62. The new programme should result in **an adaptable framework** that can respond efficiently to the rapid changes in university education and international global competition. Equally well, it should continuously stimulate the quality of educational programmes and partnerships. This means that it should not be rigid, but revisable every year of its existence.

63. Of particular importance is the necessity for **adequate administrative, organisational and logistic support for programme managers** who decide to start an international collaboration around structured mobility schemes. Indeed, as the initative for these schemes resides with the academics, they need to be supported in developing the curriculum and practicalities that come with it, so that they can concentrate on the contents rather than on organisational and practical issues. This can be facilitated by **allowing for a substantial organisational financial overhead in the new funding schemes** of e.g. Erasmus for All, as well as providing more flexibility (e.g. allowing for bilateral partnerships (with only two partners), rather than minimally three) and decreasing the level of administrative reporting, but rather emphasizing the achieved deliverables and academic output.

64. **Practical issues**, especially for structured mobility schemes, include the solution of problems related to different tuition fees (e.g. the fact that balanced flows of incoming and outgoing students are not fee neutral for many universities), the synchronization of timelines in coping with different calenders for the academic year, alignment of credit and diploma requirements, logistic issues induced by student mobility (like housing, etc.), among others. These problems can only be tackled if there is sufficient administrative and logistic support for the programme managers involved, which should be possible to fund on the funding schemes provided by the European mobility programs.

65. Finally, LERU supports the notion of **the knowledge triangle** as put forward in Erasmus For All, as a guiding principle for education, based on research and innovation and preparing students as future researchers, professionals and citisens in the European knowledge society. Structured mobility schemes will strengthen the 'triple helix'.

V.2. RECOMMENDATIONS AT THE NATIONAL LEVEL

66. National governments should encourage the improvement and optimization of university curricula by international collaboration and mobility. Therefore, they should take away existing barriers, still related to recognition and rules which hamper international curricula.

As has been stated in the Communiqué of the Council of Ministers of Education in Bucarest (2012), the social dimension of mobility should be ensured, giving students equal access to mobility, including the portability of grants and loans across the EHEA. Also, national qualification frameworks should take into account international programme collaboration and mobility.

V.3. RECOMMENDATIONS AT THE INSTITUTIONAL LEVEL

67. Curriculum collaboration and mobility, based on strategic partnerships could, on a longer time horizon, be **part of the international policies and strategies of a university, leading to excellence**, although only the 'bottom-up' initiative of academics will generate the necessary 'buy-in' and goodwill. Enhancing the visibility of successful programmes and informing about best practices, might be the best way to create goodwill with the academics, apart from providing sufficient financial means (e.g. European funding) for administrative, organisational and logistic support of programme managers. For embedded mobility schemes, educational collaboration could be founded on research and innovation. Conversely, educational collaboration and educating new talents will serve the research potential of the academics involved in the embedded programme.

68. The **institutional collaboration and mobility policy should allow for diversity in mobility schemes,** according to the quality requirements of the researchers and curricula, and objectives of academics, researchers and students. Clearly, **the design of mobility schemes can differ for undergraduate and graduate programs**, **and for different disciplines and their level of specialisation**. The features of the three mobility schemes we have discussed here, generate a continuum of models for curriculum collaboration and mobility. The 'exchange model' applies to individual mobility, with as a main driver the individual international experience, which *in se* requires only limited collaboration. The second (networked) and third (embedded) model aim at more structured mobility, basically content driven, which requires stronger agreements and collaborations at the curriculum level.

V.4. RECOMMENDATIONS AT THE PROGRAMME LEVEL

69. The programme management and staff should examine if the curriculum can be strengthened by developing synergies with trusted international partners. The related mobility schemes should offer high quality learning opportunities for students, but at the same time should aim at improving the underlying research quality.

70. **Exchange mobility** is probably most easy to implement in many if not most programmes. A wide range of mobility options could be made available during the course of the programme, including short periods like intensive courses or summer schools. Mobility can be organised at intermittent stages. Also internships in innovative non-university institutions could be considered.

71. Exchange mobility has the advantage that it can originate either from a demand of a student or from a range of opportunities offered by the programme. In this sense, it is more flexible than more structured forms of mobility.

72. **Networked mobility** is an intervention by the programme management and the staff into the curriculum. It is a systemic approach, providing consistent and pre-structured learning opportunities for students in partner universities abroad, which are complementary to the courses at the home university or offer a rich international experience. It can consist of a unit like a course, a seminar, a project, thesis work or a supervised internship, but in most cases, it is meant to offer an alternative for study options, a discipline or a specialisation which was not taught at the home university.

73. Networked mobility requires that programmes are at the same level and that the curriculum objectives are similar enough to allow collaboration on various options. In this respect, collaboration in research and innovation is a strong and sustainable basis. The number of partners should not exceed too much the number of relevant learning options for students. Networked curricula and mobility can be flexibilised by the support of ICT, by which students of different universities in the partnership can participate simultaneously to specific learning activities as seminars, projects or learning communities. By including online mobility or blended mobility, access and interaction can be optimised, also for students who for various reasons are not able to go abroad, e.g. part time students.

74. In **integrated or embedded mobility schemes,** universities offer a joint curriculum, in which students follow complementary parts of the curriculum in two or more partner universities. The programme is owned by the organizing universities together, which constitute a consortium to run it. The consortium takes the responsibility of a programme committee, including all pedagogical and organisational aspects, in collaboration with the constituting universities. This cooperation is appropriate in the case of a specialised programme, requiring multidisciplinary synergies from different universities, or in the case of an international subject area or an area with an essentially comparative approach.