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THIRD INES PRIORITY-RATING EXERCISE (INCLUDING A NEW QUESTIONNAIRE TO ASSESS EXISTING AND POTENTIAL FUTURE INDICATORS ON TERTIARY EDUCATION)

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Contact: Eric Charbonnier (eric.charbonnier@oecd.org, tel.: +33 1 45 24 88 62)

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THIRD INES PRIORITY-RATING EXERCISE (INCLUDING A NEW QUESTIONNAIRE TO ASSESS EXISTING AND POTENTIAL FUTURE INDICATORS ON TERTIARY EDUCATION)

Standards and algorithms in the priority-rating exercise

1. At its meeting in November 2009, the Education Policy Committee adopted the instruments and process for a priority-rating exercise to guide the contents of Education at a Glance. EPDC members agreed that the rating exercise should be administered every two years in order to lead the biennial programme of work. The first exercise took place in 2010; the second in 2012; and both helped to determine the Programme of Work and Budget of the two biennium.

2. The rating exercise is based on six standards (as defined in Annex 1):

- Standards 1 and 2: Enduring relevance of the indicators and value that cross-national analysis would add
- Standard 3: The concepts and definitions underlying the indicator
- Standard 4: The indicator calculation methodology
- Standard 5: The quality of data used to produce the indicator
- Standard 6: Interpretability

3. For each of the existing and potential future indicators, countries are expected to provide a rating for each of these standards from their own perspective – *i.e.* their own opinion about the policy relevance, the clarity of the definitions and the quality of their own data – rather than giving their perceptions of the international position.

4. As agreed with the INES Working Party and the INES Advisory Group, the following algorithms are applied to infer decisions on the inclusion of indicators from the ratings submitted by the countries:

- The ***relevance*** of the indicators is considered as the prime criterion in the analysis and is thus considered first in the assessment. To evaluate the relevance of the indicators, standards 1 and 2 have been aggregated and have the same relative weight. If an indicator is rated as 'essential' or 'relevant' by less than 50% of responding countries, it is deemed not suitable for inclusion in *Education at a Glance*. If an indicator is either rated as 'essential' by at least half of the responding countries or 'essential' or 'relevant but not essential' by at least three-quarters of responding countries, it is deemed suitable for inclusion in *Education at a Glance*, as long as it also meets the technical standards. For the indicators rated as 'essential' or 'relevant but not essential' by more than 50% but less than 75% of responding countries, the adjudication process will be used to determine the indicator's adherence to the technical standards and resources needed for improvement.
- Of the four technical standards (standards 3 to 6), only those relating to *data quality*, *concepts and definitions* and *calculation methodology* will be used for assessing the priority of indicators and their inclusion in *Education at Glance.* The standard of *interpretability* provides information to guide the OECD Secretariat's efforts to improve the clarity of presentation in *Education at a Glance* and is therefore not included in the algorithms.

- Wherever the results of the rating exercise indicate that **all three** technical standards (*data quality*, *concepts and definitions* and *calculation methodology)* have been met (i.e. each standard "fully met" by at least half of the responding countries or "partially met" by at least three-quarters of responding countries), the indicator will be deemed suitable for inclusion in the *Education at a Glance* dataset, as long as the relevance standard is also met.
- In order to assess situations in which all three technical standards are not met, an average across the three standards is calculated from the percentage of countries rating the standards as "Fully met" or "Partially met." In cases where this average is less than 50%, the indicator will be deemed unsuitable for inclusion in the *Education at a Glance* dataset. In these cases, if the 'relevance' standard has nevertheless been met, the indicator will be included among the priorities in the development work undertaken by the INES Working Party. In this case, the INES programme of work and resources needed to improve indicators will assist in planning this work.
- In cases where the calculated average is 50% or more, an adjudication process will determine the extent to which the quality, relevance and international comparability of the data are acceptable (*e.g.,* indicator on net present value in the first rating exercise). The adjudication process will consider the size of the calculated average percentage for the technical standards, the desired size of the indicator set, the desired balance between new indicators, developed indicators and stable indicators and the desired balance between the four chapters of the book.

Estimation of the level of resources needed at both national and international levels to develop those indicators that fall short of the *technical* standards

5. In addition to rating the indicators on the six standards, countries are asked in the questionnaire to estimate the level of resources needed at both national and international levels to develop those indicators that fall short of the *technical* standards (Standards 3, 4, 5 and 6) so that they fully meet the four standards of concept and definitions, methodology, data quality and interpretability. Policy relevance is not included in this part of the rating exercise because this variable is independent of resources allocated to indicators.

6. This assessment should establish the level of effort and resources required to make the concepts, data and methods for the indicators fit the purposes of the intended comparisons. Countries should report in this column "no extra resources needed" to meet the standards if, in their opinion, the indicator already meets the four standards, "low level of resources" if they estimate that the development work necessary is manageable within current budgets but is still necessary **for one out of the four standards**. An international cost would arise, for example, if the preparation of a paper for the Working Party to improve the definitions of the indicator is required. A national cost would arise, for example, if the indicator needs some work at the national level to improve the data quality. If a country decides to allocate "low level of resources" to an indicator, it means that the improvement can be achieved in less than one year (*e.g.* for the next version of the rating exercise, and the next version of *Education at a Glance*).

7. Countries should report "Medium level of resources" in this column if the development work would require some additional resources at national and/or international level(s) and is necessary **for two out of the four standards.** The cost of these standards can be national and international if, for instance, the development work includes changes in the methodology to improve its robustness (international cost) and adherence of the data to this new methodology (national cost). If a country decides to allocate "medium level of resources" to an indicator, it means that the improvement can be realised in less than two years (*e.g.* in the 2011 edition of *Education at a Glance* if the rating is based on *Education at a Glance 2009*).

8. Countries should report "high level of resources" in this column if the estimated resources required will call for a major commitment of resources at the national and international levels and if the development work is necessary **for at least 3 out of the four standards**. If a country decides to allocate "high level of resources" to an indicator, it means that the improvement cannot be realised in less than two years.

9. The ratings against the technical standards and of the resource estimates should be made at the level of the indicator. However, countries may also wish to rate the tables within the indicator, particularly in order to illustrate where weaknesses in the standards need to be addressed. An indicator can adhere to the technical standards but a table within the indicator may not meet all the standards. This rating will help to decide the size of the volume and to make improvements in the content of the tables within each indicator.

Outcomes of the second priority-rating exercise

10. The second exercise took place in 2012. The main outcomes of the second exercise are described more in depth in document **EDU/EDPC/INES/WP(2012)4** but can be summarized as follow. The second priority-rating exercise:

- Demonstrated the excellent overall quality of the INES indicators, in terms of policy relevance as well as of technical requirements, with member countries indicating that all indicators met the technical criteria for direct inclusion in *Education at a Glance*. However, this outcome masks a high dispersion in the countries' ratings.
- Highlighted better results compared to the first rating exercise (as much for INES WP indicators as for LSO and NESLI ones), with adherence to each technical criterion improving on average by three percentage points compared to the first exercise.
- Showed that 21 out of the 51 indicators could be considered as core indicators with more than 50% of the responding countries considering them as "essential for national purposes" and with technical criteria "fully or almost" met. For nine additional indicators, only one of the six individual criteria rated below the benchmark of 50%, which means that they are therefore not so far from being considered as core indicators.
- Showed there was a third group that includes 14 indicators, all of which have 2 or 3 individual criteria below the benchmark of 50% and therefore need more resources in order to be included in the group of core indicators.
- Highlighted that for seven indicators, at least four out of the six individual criteria were considered as "essential for national purposes" and with technical criteria "fully or almost" met by less than 50% of the responding countries. The cost for improvement is high for this category of indicators because most of them are composite or mix different sources; and more than 38% of the responding countries estimated that the cost to meet technical criteria would be medium or high.
- Showed that only 2 out of the 51 indicators (i.e. public and private net present value and decisions on payments for teachers) were not directly suitable for inclusion in *Education at a Glance* and needed adjudication because they were not sufficiently policy relevant.
- Underlined that the five other indicators (public efficiency was excluded of the second rating) to adjudicate after the first rating exercise (i.e. social outcomes of education, how do schools monitor their performance?, evaluations and assessments, decision making in education systems, and policy choices in primary and secondary education) had been rated "essential" or "relevant

but not essential" by more than three-quarters of the responding countries, and were therefore now suitable for direct inclusion in *Education at a Glance*.

Content of the third rating exercise

11. These results had been discussed by the INES working party and the INES advisory group in 2012. Among the main conclusions (see doc. Ref. EDU/EDPC/INES/AG/M(2012)1), with respect to the structure and frequency of future INES priority rating exercises, the INES Advisory Group:

- **EXPRESSED SUPPORT** for retaining the exercise every two years;
- **EXPRESSED SUPPORT** for excluding "core" indicators from future ratings, and instead focusing on indicators that need improvement, as well as those under development;

12. Therefore, the third rating-exercise is focused on INES indicators having the lowest rating in the second exercise. Additionally, as agreed by the INES Working Party in March 2014 (see doc. Ref. EDU/EDPC/INES/WP(2014)8), the INES rating exercise includes for the first time a specific questionnaire to assess existing and potential future indicators on tertiary education. Therefore, the third priority-rating exercise is divided into two questionnaires:

- Q1: A questionnaire to rate the indicators already produced by INES and considered in the second exercise as needing improvement.
- Q2: A questionnaire to assess existing and potential future indicators on tertiary education.

All these indicators will be assessed according to the criteria, standards and algorithms used in the two previous priority-rating exercises.

13. The Working Party will be invited in plenary session and in smaller working groups to:

- **REVIEW** and **FINALISE** the indicators to include in the rating exercise (current indicators and indicators under development);
- **VALIDATE** the planning proposed for the project.

First questionnaire: Rating of the indicators produced by INES (similar to the second exercise but focusing on indicators that need improvement)

14. As said in previous section, the second rating exercise showed that 21 of the 51 indicators rated can be classified as "core indicators". Moreover, additional 9 indicators can be considered close to being "core" indicators, with only one individual criterion rated below the benchmark of 50%. These 30 indicators included in **Table 1 below** are then excluded of the third rating-exercise.

15. Our efforts this year will be focussed on the 21 remaining indicators having the lowest rating in 2012. These indicators were classified in Groups 3 and 4 in the second rating exercise (see Table 3 in the Annex 2 of the document).

Table 1. List of indicators with the best ratings

INES WP: 16 indicators	NESLI: 6 indicators	LSO: 8 indicators
• Enrolment rates by level of education • Trend data on enrolment rates • Average class size • Upper secondary and post-secondary graduation rates • Entry rates in tertiary education • Trend in entry rates • Science graduates per 100 000 employed 25-to-34-year-olds • Change in tertiary graduation rates • Change in upper secondary graduation rates • Tertiary graduation rates • Expenditure per student • Expenditure in percentage of GDP • Change in the share of public and private funding in tertiary education • Total public expenditure on education • Ratio of students to teaching staff • Age and gender distribution of teachers	• Instruction time • Teacher's working time • Educational equality and equity • School accountability arrangements • Statutory teachers' salaries in primary and secondary education • Trends in teachers' salaries in primary and secondary education	• Employment and unemployment rates by educational level • Educational attainment of the population, by level of education • Trend in employment and unemployment rates • Trends in educational attainment • Young in education and not in education • VET indicator • Long-term unemployment among young and part-time jobs • Adult education and training

16. The third group included 14 indicators, and all of them had 2 or 3 individual criteria that were rated below the benchmark of 50%. This group included some indicators that were not sufficiently relevant for the majority of countries (school expectancy and 4 NESLI indicators), three indicators that were policy relevant but where the adherence to technical criteria could be improved (policy choices in primary and secondary education, student mobility and completion rates in tertiary education), and six indicators where at least data quality and the value that cross-national analysis would add could be improved.

17. Finally, the fourth group included seven indicators, all of which had at least four individual criteria that were rated below the benchmark of 50% (see Table 3 in Annex 2). This was the most critical group of indicators: five out of seven were suitable for direct inclusion in *Education at a Glance*, but they required some refinements to be better rated in the future.

18. The INES Working party will be invited to rate these 21 indicators according to the criteria described in introduction of the paper (see list of indicators in Table 2 below and in Annex 3).

Table 2. List of the 21 indicators included in the third INES priority–rating exercise

Regular indicators (UOE)	Regular indicators (LSO)	Non-regular indicators (data collected every 3 years)	Composite or developmental indicators
Indicator 1: School expectancy Indicator 2: Public and private expenditure Indicator 3: Public subsidies for households and other private entities Indicator 4: Expenditure by service category Indicator 5: Teaching and non-teaching staff Indicator 6: Student mobility in tertiary education	Indicator 7: Skilled jobs and educational attainment Indicator 8: Relative earnings of the population Indicator 9: Trend in relative earnings of the population Indicator 10: Education and economics	Indicator 11: Tuition fees and student loans (INES WP) Indicator 12: Upper secondary completion rates (INES WP) Indicator 13: Decision making in education systems (NESLI network) Indicator 14: Students' participation in higher education, by socio-economic status of their parents Indicator 15: Completion rate in tertiary education (Indicator A4, EAG 2010, INES WP) Indicator 16: Decisions on payments for teachers (NESLI Network) Indicator 17: Parent voice (NESLI network) Indicator 18: School choice (NESLI Network)	Indicator 19: Public and Private net present value (LSO network) Indicator 20: Social outcomes of education (CERI) Indicator 21: Policy choices in primary and secondary education (INES WP)

Second questionnaire to assess existing and potential future indicators on tertiary education against the agreed standards through a priority-rating exercise

19. The project on higher education initiated by INES has been discussed by the Education Policy Committee meeting. Thus, at the last Education Policy Committee meeting (April 2014), an informal working group was set up to consider what policy-related work the EDPC could carry out on higher education and how it could be financed. The informal working group held several webinars and a meeting to explore countries' interests and priorities in higher education, develop concrete proposals for work and consider funding arrangement

20. The general conclusion of this group was that it is important for the EDPC to carry out policy analysis and maintain a capacity to provide evidence-based policy advice on higher education issues. Countries also stressed the need for closer connection between policy analysis and indicators development. On the latter, INES project has been mentioned several times and this new informal working group clarified that one of their objectives was to expand the benchmarking system, by collecting new qualitative

information or developing new quantitative indicators on higher education (in cooperation with the INES Working Party). They also mentioned that the next step to achieve this goal would then be to work on filling information gaps and broadening the coverage and relevance of the benchmarking system further, whether through qualitative information (e.g. standardised qualitative information, synthesis tables) or the development of new quantitative indicators (in cooperation with INES working party) [see doc ref. EDU/EDPC(2014)17].

21. Therefore, the new questionnaire on tertiary education will serve to establish a short/medium/long term strategy to develop new indicators on tertiary education. The content of this questionnaire has already been discussed at the previous INES Working Party. At this meeting, the OECD Secretariat presented an action plan to consolidate and develop indicators on tertiary education [EDU/EDPC/INES/WP(2014)8] and the INES Working Party delegates:

- Strongly SUPPORTED the development of the work on tertiary indicators.
- WELCOMED a priority rating on tertiary indicators to establish a short/medium/long term development strategy and NOTED that the cost in the development of some of the new indicators proposed can be high.
- CLARIFIED that the rating exercise will also collect metadata on the level of resources implied by the development of indicators.
- WELCOMED the commitment of the OECD Secretariat to create synergies between work undertaken by different OECD directorates and international organisations (to avoid double work).

22. As agreed at last INES Working Party meeting, the list of indicators included in the third priority rating exercise are grouped in five domains. INES Working Party should rate these indicators according to the criteria described in introduction (e.g. policy relevance and adherence to technical standards). The rating of indicators will vary according to the sources used for the indicator. For indicators that have never been developed at the international level, only relevance and data availability will be evaluated.

23. As suggested at the previous INES Working Party meeting, the cost in the development of some of the new indicators should also be rated to be able to establish a short/medium/long term development strategy. The five domains included in the survey (more details in Annex 4) are:

- Structure of tertiary education
  - Indicator 1: Pathways to tertiary education and from tertiary education to labour market
  - Indicator 2: admission policies to tertiary education
  - Indicator 3: Basic characteristics of tertiary education systems
- Teacher qualifications and internationalisation
  - Indicator 4: Teaching Staff - Who are the teachers in tertiary education?
  - Indicator 5: Internationalisation of tertiary education
- Access to new technologies
  - Indicator 6: Development of Massive Open Online Courses (MOOCs)
  - Indicator 7: Access to e-learning
- Equity
  - Indicator 8: Equity in tertiary education

- Labour market outcomes
  - Indicator 9: The career of doctorates
  - Indicator 10: Employment and earnings of first degree graduates
  - Indicator 11: Skills acquired by students in tertiary education and required by innovative economies

Next steps

24. The 14th INES Working Party meeting will offer an opportunity to discuss the design and content of the third priority-rating exercise. All the comments received during the meeting will be taken into account to finalise the survey.

25. This finalised survey will be sent after to all the delegates of the INES Working Party to be filled-in. The outcomes of the survey will be used for the preparation of a paper for the 15th INES Working Party meeting (March 2015) which will include a short/medium/long term action plan and proposal for the 2015 and 2016 editions of *Education at a Glance*.

26. The proposed schedule of work includes the following steps:

October 2014 (14th INES WP meeting):

- Presentation of the third INES priority-rating exercise.
- Inclusion of comments received during the 14th INES Working Party meeting.

First week of November:

- Send-out (by the OECD Secretariat) of the final version of the survey to the INES WP members (with a six weeks period to reply).

January 2015:

- The paper including the outcomes of the rating of the INES indicators with the lowest rating (based on questionnaire Q1) will be sent to INES delegates
- Analysis of the outcomes of the questionnaire to assess existing and potential future indicators on tertiary education (based on questionnaire Q2) in cooperation with the INES informal working group on tertiary education.

March 2015 (15th INES WP meeting):

- Presentation of a paper including the main results of the survey and an action plan for development of indicators on tertiary education during the next biennium and inclusion in the next editions of *Education at a Glance*.

ANNEX 1 DEFINITION OF STANDARDS USED FOR THE RATING OF INDICATORS

Standards 1 and 2: Relevance of the indicators

Evaluating the relevance of the indicators allows a qualitative assessment of the value added of these data. Here, value is measured by the degree to which the data serve to address the policy issues in which countries are interested. Relevance to policy makers can also be measured by the usefulness of the indicators for developing and monitoring educational reforms. Following the recommendation by the INES Advisory Group, the assessment of 'relevance' should focus on the enduring policy relevance of the indicators - considering that the assessment would prioritise resources for the development of indicators to be published beyond the next biennium - as well as on the added value international comparisons of these indicators would provide to countries.

The indicators included in *Education at a Glance* should follow this standard and the totality of the indicators should convey a relevant picture of education systems. At the same time, judgments on the relevance of indicators may differ not only between user groups but also between countries, since education systems and policy goals differ. For each indicator, countries are asked to judge whether the indicator (and its underlying tables) is "essential for national purposes," "relevant but not essential," "of limited relevance for national purposes," or if it has "no national relevance."

The percentage in each category will serve to evaluate this technical standard. The standard is met if the output is either rated as "essential" by at least half of the responding countries or as "essential" or "relevant" by at least three-quarters of responding countries.

Standards 2, 3 and, 4: Coherence of individual indicators

Over the years, various methodologies and data collection instruments have been developed to facilitate international comparisons in the different educational areas. However, some indicators have not been included *in Education at a Glance* due to a lack of coherence or because there was a need to further develop the methodologies and concepts on which they are based. For instance, this was the case for the indicator on cost per graduate, which was relevant for the majority of countries (Standard 1) but for which the methodology was not considered sufficiently elaborated to justify the publication of the indicator.

The coherence of an indicator is measured by three criteria:

- The concepts and definitions underlying the indicator.
- The calculation methodology.
- The quality of data used to produce it.

These three criteria can be measured separately to give an overview of the coherence of the indicators. All of the indicators published should follow this standard so that together, they constitute a set of comparative indicators that provides insights into the functioning of education systems.

Concepts and definitions must set out the essential attributes of what is intended to be measured. A definition should be sufficiently understandable and clear to avoid multiple interpretations of what countries are expected to report in the different surveys. The standard should be considered "fully met" when concepts and definitions are sufficiently clear and commonly understood. The standard is "partially met" if the definitions and concepts are in need of some refinement but do not represent serious weaknesses, and it is considered as "not met at all" if there is a serious lack of clarity in the explanations that can lead to different interpretations of what is to be reported.

The **calculation methodology** is used to implement the definitions in the calculation of the indicator from the underlying data. It begins with the description of generic calculations and statistical adjustments that are made to the data reported by countries *e.g.* calculation of country means, ratio, adjustments of financial years to school years. Each indicator has specific calculation methods. The standard is "fully met" if the methodology is consistent with the concepts and definitions and sufficiently robust from a scientific point of view, "partially met" when there is a need for refinement but the deficiencies are not seen as seriously distorting the results and "not met at all" if the methodology is sufficiently unclear to create serious discrepancies in the ways countries report data in the different surveys.

A concept and underlying definitions can be well defined but the data quality can be poor (*e.g.* definitions and data quality on private tutoring). **Data quality** is "fully met" when the data reported by the country rating this standard are in accordance with the definitions, "partially met" when a gap exists between what is asked to be reported in the questionnaires and what is entered in the data collection by countries, and "not met at all" when the gap observed between definitions and reported data can distort the comparability between countries in the indicator (or when data are missing). Countries have to rate the data quality of their own data submission, not the data quality of other countries.

For each indicator, countries should separately assess the three criteria - concept and definitions, methodology, data quality – as either "fully met," "partially met," or "not met at all." The standard is met for an indicator if each criterion of coherence (concept and definitions, methodology, data quality) are either rated "fully met" by at least half of the responding countries, or at least "partially met" by a minimum of three-quarters of responding countries.

Standard 5: Interpretability

The concept of interpretability is of key importance since it influences the use that can be made of the data. Interpretability depends on the quality, structure and detail of tables and their accompanying metadata, and by the clarity of the charts prepared to illustrate the indicators. The indicators published should also be consistent with the figures published at national level. If they are not consistent, the differences should be easily explainable to ensure the credibility of the figures and their interpretability. Finally, the analysis and interpretation of an indicator must be in accordance with the technical quality of the data. In other words, sufficient caveats must be introduced for data that are of a more developmental nature.

The standard is met if the interpretability of the indicator at international and national levels is clearly understood and documented, "partially met" if the outcomes of the indicator could be better explained and "not met at all" if the interpretation of the figures included in the indicator is inconsistent with the reality of the education system. The standard of interpretability is met if the indicator is either rated "fully met" by at least half of the responding countries or at least "partially met" by at least three-quarters of responding countries.

ANNEX 2: OUTCOMES OF THE SECOND PRIORITY-RATING EXERCISE

Table 3. Grouping of indicators, based on the percentage of countries that consider that the relevance of the indicators is "essential" for national purposes and that the technical criteria are "fully or almost" met, by indicator and individual criterion (see in yellow the percentages below 50%)

	Criterion 1: Enduring relevance of the indicators	Criterion 2: Value which international comparisons add to the indicator as compared to data that are nationally available	Criterion 3: The concepts and definitions underlying the indicator	Criterion 4: The indicator's calculation methodology	Criterion 5: The quality of data used to produce the indicator	Criterion 6: Interpretability	
Group 1 (21 indicators)							
Indicator VI.2a: Enrolment rates by level of education (INES WP)	78.8	78.8	94.3	100.0	80.0	88.6	6
Indicator II.1a: Employment and unemployment rates by educational levels (LSO)	75.8	63.6	97.1	88.6	82.9	94.3	6
Indicator I.6a: Educational attainment of the population, by level of education (LSO)	90.9	78.8	97.1	65.7	80.0	82.9	6
Indicator V.4: Total public expenditure on education (INES WP)	90.9	78.8	88.6	82.9	71.4	82.9	6
Indicator VI.2b: Trend data on enrolment rates (INES WP)	69.7	72.7	94.3	100.0	71.4	85.7	6
Indicator II.1b: Trend in employment and unemployment rates (LSO)	69.7	60.6	97.1	85.7	82.9	91.4	6
Indicator I.6b: Trends in educational attainment (LSO)	78.8	78.8	91.4	60.0	77.1	85.7	6
Indicator II.3: Young in education and not in education (LSO)	78.8	66.7	91.4	85.7	68.6	71.4	6
Indicator VII.1: Average class size (INES WP)	63.6	63.6	82.9	74.3	62.9	77.1	6
Indicator I.1a: Upper secondary and post-secondary graduation rates (INES WP)	87.9	72.7	68.6	68.6	57.1	74.3	6
Indicator VII.3: Instruction time (NESLI)	62.5	71.9	79.4	76.5	67.6	58.8	6
Indicator VI.1a Entry rates in tertiary education (INES WP)	66.7	57.6	80.0	77.1	62.9	65.7	6
Indicator VI.1b: Trend in entry rates (INES WP)	63.6	57.6	82.9	80.0	68.6	68.6	6
Indicator I.4: Science graduates per 100 000 employed 25-to-34-year-olds (INES WP)	54.5	51.5	85.7	74.3	77.1	68.6	6
Indicator I.3b: Change in tertiary graduation rates (INES WP)	72.7	65.6	79.4	77.1	54.3	60.0	6
Indicator I.1b: Change in upper secondary graduation rates (INES WP)	69.7	60.6	77.1	74.3	51.4	71.4	6
Indicator VII.8: Teacher's working time (NESLI)	66.7	66.7	71.4	65.7	57.1	54.5	6
Indicator IV.3:Educational Equality and Equity (NESLI)	68.8	56.3	61.8	58.8	61.8	55.9	6
Indicator VIII .1: School accountability arrangements (NESLI)	56.3	56.3	60.6	63.6	66.7	54.5	6
Indicator I.8: VET indicator (LSO)	63.6	57.6	61.8	61.8	51.5	58.8	6
Indicator I.3a: Tertiary graduation rates (INES WP)	87.9	78.8	76.5	79.4	50.0	58.8	6
Group 2 (9 indicators)							
Indicator IV.1: Adult education and training (LSO)	65.6	56.3	58.8	52.9	48.5	64.7	5
Indicator VII.5: Age and gender distribution of teachers (INES WP)	54.5	45.5	97.0	90.9	69.7	84.8	5

Table 3 (continue)	Criterion 1: Enduring relevance of the indicators	Criterion 2: Value which international comparisons add to the indicator	Criterion 3: The concepts and definitions underlying the indicator	Criterion 4: The indicator's calculation methodology	Criterion 5: The quality of data used to produce the indicator	Criterion 6: Interpretability	
Indicator V.1: Expenditure per student (INES WP)	93.9	81.8	82.9	80.0	34.3	57.1	5
Indicator V.2: Expenditure in percentage of GDP (INES WP)	78.8	72.7	85.7	82.9	45.7	65.7	5
Indicator II.2: Long-term unemployment among young and part-time jobs (LSO)	60.6	48.5	82.9	80.0	67.6	77.1	5
Indicator VII.2: Ratio of students to teaching staff (INES WP)	78.8	69.7	85.7	82.9	45.7	65.7	5
Indicator VII.6a: Statutory teachers' salaries in primary and secondary education (NESLI)	69.7	63.6	57.1	54.3	54.3	45.7	5
Indicator VII.6b: Trends in teachers' salaries in primary and secondary education (NESLI)	63.6	60.6	58.8	50.0	50.0	41.2	5
Indicator V.3b: Change in the share of public and private funding in tertiary education (INES WP)	54.5	51.5	68.6	68.6	37.1	57.1	5
Group 3 (14 indicators)							
Indicator III.1a: Relative earnings of the population, by level of education attained (LSO)	66.7	48.5	91.2	61.8	42.9	64.7	4
Indicator VI.4: School expectancy (INES WP)	42.4	39.4	76.5	67.6	67.6	61.8	4
Indicator VIII.3: School choice (NESLI)	37.5	37.5	71.9	69.7	75.8	63.6	4
Indicator VII.7: Decisions on payments for teachers (NESLI)	27.3	30.3	71.4	68.6	71.4	68.6	4
Indicator VIII .2: Locus of decision making (NESLI)	40.6	43.8	60.6	59.4	62.5	59.4	4
Indicator III.1b: Trend in relative earnings of the population (LSO)	48.5	36.4	91.2	61.8	37.1	64.7	4
Indicator V.3a: Relative proportion of public and private funds, by level of education (INES WP)	54.5	48.5	77.1	77.1	40.0	57.1	4
Indicator VIII.4: Parent voice (NESLI)	25.8	32.3	65.6	65.6	62.5	53.1	4
Indicator VI.3: Student mobility in tertiary education (INES WP)	63.6	63.6	57.1	48.6	22.9	48.6	3
Indicator I.5: Completion rate in tertiary education (INES WP)	78.8	72.7	65.7	42.9	45.7	37.1	3
Indicator IV.2: Students in higher education, by socio-economic status of their parents (LSO)	53.1	46.9	62.5	50.0	31.3	48.4	3
Indicator V.8: Policy choices in primary and secondary education (INES WP)	56.3	50.0	51.5	45.5	45.5	40.6	3
Indicator V.5: Public subsidies for households and other private entities (INES WP)	51.5	48.5	62.9	60.0	42.9	45.7	3
Indicator I.7: Skilled jobs and educational attainment (LSO)	42.4	30.3	61.8	52.9	41.2	50.0	3
Group 4 (7 indicators)							
Indicator V.6: Tuition fees charged by tertiary educational institutions (INES WP)	45.5	37.5	67.6	60.0	32.4	44.1	2
Indicator V.7: Expenditure by service category (INES WP)	42.4	36.4	55.9	61.8	31.4	44.1	2
Indicator I.2: Upper secondary completion rates (INES WP)	72.7	60.6	44.1	41.2	30.3	38.2	2
Indicator VII.4: Teaching and non-teaching staff (INES WP)	28.1	28.1	66.7	69.7	33.3	43.8	2
Indicator III.3: Social outcomes of education (LSO and CERI)	57.6	42.4	46.7	40.0	24.1	40.0	1
Indicator III.2: Public and private net present value (LSO)	45.5	36.4	36.4	24.2	12.1	33.3	0
Indicator III.4: Education and economics (LSO)	42.4	33.3	48.4	35.5	26.7	45.2	0
INES average	**62.0**	**55.9**	**73.1**	**66.8**	**53.6**	**61.2**	**62.0**

ANNEX III Q1 - DESCRIPTION OF THE INDICATORS INCLUDED IN THE RATING OF THE INDICATORS PRODUCED BY INES (SIMILAR TO THE SECOND EXERCISE BUT FOCUSING ON INDICATORS THAT NEED IMPROVEMENT)

I. Graduation, attainment and completion rates

- **Indicator I.1: Upper secondary completion rates (INES WP)**

Description: Policy makers are examining ways to reduce the number of early school-leavers, defined as those students who do not complete their upper secondary education. Internationally comparable measures of how many students successfully complete upper secondary programmes – which also imply how many students do not complete those programmes – can assist efforts to identify these students.

- **Indicator I.2: Completion rate in tertiary education (INES WP)**

Breakdown: programme destination and gender

Description: Tertiary completion rates can be a useful indicator of the internal efficiency of tertiary education systems. However, students may leave a tertiary programme for many reasons: they may realise that they have chosen a subject or educational programme that is not a good fit for them; they may fail to meet the standards set by their educational institution, particularly in tertiary systems that provide relatively broad access; or they may find attractive employment before completing their programme. Students may find that the educational programmes offered do not meet their expectations or their labour market needs. This indicator shows current tertiary completion rates in education systems, i.e., the percentage of students who follow and graduate from tertiary programmes. Although non-completion is not necessarily an indicator of failure from the individual student's perspective, high dropout rates may indicate that the education system is not meeting students' needs.

- **Indicator I.3: Skilled jobs and educational attainment (LSO)**

Description: As overall demand for education is likely to rise, thus increasing the supply of more highly educated individuals to the labour market, it is important to track the demand for more skilled workers in the coming years. A key issue for any education system is to supply the labour market with the level and diversity of skills that employers require. The match between educational attainment and occupations can thus be seen as a good gauge of how well education systems and labour markets are aligned. This indicator examines, for instance, the proportion of higher educated in skilled jobs and the distribution of educational groups across the occupational spectrum.

II. The economic benefits of education

- **Indicator II.1: Relative earnings of the population (LSO)**
  - Indicator **II.1a**: Relative earnings of the population, by level of education attained

Description: One way that labour markets provide incentives for individuals to develop and maintain skills is through earnings. The earnings premium realised by those with higher levels of education is not only an incentive to invest in education, but also says something about the supply of and demand for education. Variations in relative earnings (before taxes) among countries reflect a number of factors, such as minimum-wage legislation and the strength of labour unions. Still, earnings differentials are among the more straightforward indications of whether the supply of educated individuals meets demand, particularly in light of changes over time.

  - Indicator **II.1b**: Trend in relative earnings of the population

Description: Trend data on the earnings premium is an important indicator of the overall match between the education system and the labour market. High and rising earnings premiums can indicate that more highly educated individuals are in short supply; the opposite is true for low and falling premiums. Despite an increase in tertiary attainment, trend data on relative earnings suggest that the demand for tertiary-educated individuals has exceeded the

supply from higher educational institutions in most OECD countries as earnings premiums have kept rising in the past decade. The time series on relative earnings available in this indicator provides a key overall indication how demand and supply for skills evolve over time.

- **Indicator II.2: Public and private net present value (LSO)**

Description: This indicator takes a closer look at the incentives to invest in education by incorporating information on length of education, tuition fees, labour market prospects, etc. from *Education at a Glance* and taxes, social contributions, social transfers from the Taxing Wages database. The economic benefits of education flow not only to individuals but also to society, in lower social transfers and in the additional taxes individuals pay once they enter the labour market. As such, the indicator provides estimates of the net gains over the working life for both the private and public side.

- **Indicator II.3: Social outcomes of education (LSO and CERI)**

Description: There is growing interest in looking beyond the traditional measures of success such as income and GDP, and toward social aspects such as life satisfaction, civic engagement and health. This trend reflects a decline in civic engagement and individual's health conditions which may have lasting consequences for democratic societies, quality of lives and public health expenditures. A large body of literature suggests that education is positively associated with a variety of social outcomes, such as better health, stronger civic engagement and reduced crime. There are also studies suggesting that education has a causal effect on these outcomes and can even be a relatively cost-effective means to improve health and reduce crime. This indicator examines the importance of education for these outcomes across OECD countries.

- **Indicator II.4: Education and economics (LSO)**

Description: The skills available in the labour force, and the price of those skills, largely determine how countries will fare in the global market. As services and production systems become more complex, they tend to require workers with higher education. A highly-qualified workforce is thus important not only for jobs in the high-end skills sector, but also for maintaining an overall cost advantage in the lower skills segments. As the mobility of the global workforce increases, it becomes more important to strike the right balance between the competitiveness of the labour force and offering strong economic incentives to attract and retain skilled workers. This indicator investigates these issues by comparing labour costs, net and gross income, and average tax payments across educational categories in OECD countries and will in the next edition provide additional estimates of education and GDP growth.

III. Equity

- **Indicator III.1: Students in higher education, by socio-economic status of their parents (LSO)**

Description: The socio-economic status of students in higher education can help show the extent to which countries are making full use of their potential to generate future human capital. A key issue for educational systems is to provide equal opportunities for all individuals, regardless of their socio-economic status. Levelling the playing field between affluent and less affluent students is not simply a matter of equity; it is a way of increasing the recruiting ground for highly skilled jobs and overall labour competitiveness. Access to (higher) education and intergenerational mobility are investigated in this indicator and as such, information on parents' educational attainment constitutes the key element in the analysis.

IV. Financing of education

- **Indicator IV.1: Public and private expenditure (INES WP)**
  - Indicator **IV.1a**: Relative proportion of public and private funds, by level of education

Description: The balance of private and public financing of education is an important policy issue in many OECD countries for a range of reasons. Some stakeholders are concerned that this balance should not become so tilted as to discourage potential students from entering tertiary education. This indicator examines the proportion of public and private funding allocated to educational institutions at each level. It also breaks down private funding by households and expenditures by private entities other than households.

- **Indicator IV.2: Public subsidies for households and other private entities (INES WP)**

Description: Subsidies to students and their families serve as a way for governments to encourage participation in education – particularly by students from low-income families – by covering part of the cost of education and related expenses. In this way, governments can seek to address issues of access and equality of opportunity. This indicator looks at whether financial subsidies for households are provided in the form of grants or loans and raises the following question: Are scholarships/grants and loans more common in countries with higher tuition fees charged by tertiary institutions?

- **Indicator IV.3: Tuition fees charged by tertiary educational institutions (INES WP)**

Description: Policy decisions on tuition fees charged by educational institutions affect both the cost of tertiary education to students and the resources available to tertiary institutions. This indicator shows average tuition fees charged in public and private tertiary-type A institutions. It does not distinguish tuition fees by type of programme, but gives an overview of tuition fees at this level by type of institution and shows the proportions of students who do or do not receive scholarships/grants that fully or partially cover tuition fees.

- **Indicator IV.4: Expenditure by service category (INES WP)**

Description: The distribution of spending among categories of expenditure can affect the quality of services (such as teachers' salaries), the condition of educational facilities (such as school maintenance) and the education system's capacity to adjust to changing demographic and enrolment trends (such as construction of new schools). Comparisons of how different OECD countries apportion educational expenditure among the various categories can also provide insight into the organisation and operation of their educational institutions. This indicator compares OECD countries with respect to the division of spending between current and capital expenditure and the distribution of current expenditure.

This indicator breaks down educational expenditure by current and capital expenditure and within the three main functions typically fulfilled by educational institutions.

- **Indicator IV.5: Policy choices in primary and secondary education (INES WP)**

Description: Many factors affect the relationship between spending per student and student performance. Teachers' compensation is usually the largest part of expenditure on education and thus of expenditure per student. It is a function of instruction time of students, teaching time of teachers, teachers' salaries and the number of teachers needed to teach students, which depends on class size. Differences among countries in these four factors may explain differences in the level of expenditure per student. This indicator examines the policy choices countries make when investing their resources in primary and secondary education.

V. Participation and access to education

- **Indicator V.1: Student mobility in tertiary education (INES WP)**

Description: The proportion of international students in tertiary enrolments provides a good indication of the magnitude of student mobility in OECD and partner countries. This indicator shows global trends and highlights the main destinations of international students and trends in market shares of the international student pool. It discusses some of the factors underlying students' choices of a country in which to study and presents the distribution of international students by country and region of origin, type of programme, and field of study. The distribution of students enrolled outside of their country of citizenship by destination is also examined.

- **Indicator V.2: School expectancy (INES WP)**

Description: One way of looking at participation in education is to estimate the number of years during which a five-year-old child can expect to be in either full or part-time education during his/her lifetime, given current enrolment rates. School expectancy is estimated therefore by taking the sum of enrolment rates for each single year of age, starting at age five**.**

VI. Learning environment

- **Indicator VI.1: Teaching and non-teaching staff (INES WP)**

Description: The size of teaching staff has an impact on the training of children and students, and also on expenditure on educational institutions (expenditure on compensation of teachers). However, expenditure is also dependent on the size of non-teaching staff in the educational sector. There are significant differences in the distribution of educational staff between teaching and other categories, reflecting differences among countries in the organisation and management of schooling. The number of teaching and non-teaching staff employed in education per 1 000 students is an indicator of the proportion of a country's human resources devoted to educating the population.

- **Indicator VI.2: Decisions on payments for teachers (NESLI)**

Description: This indicator describes additional payments or other rewards for teachers. In fact, in addition to basic pay scales, school systems increasingly use schemes that offer additional payments or other rewards for teachers. These may take the form of financial remuneration and/or reduction in the number of teaching hours. Together with the starting salary, these payments may influence a person's decision to enter or remain in the teaching profession.

VII. Organisation of schools

- **Indicator VII .1: Locus of decision making (NESLI)**

Description: Data collection on locus of decision making will permit the systematic analysis of centralisation and decentralisation processes over time. The data collected will reveal the extent to which decisions are being made in isolation or in collaboration—or with input—from other levels of government/education authorities. Data collected will also reveal patterns in the types of decisions that are made at either higher or lower levels government.

- **Indicator VII.2: School choice (NESLI)**

Description: Expanding school choice is a common trend in many countries. Arguments for school choice are largely based on economic theory, while empirical evidence about impact of school choice is still inconclusive. Findings from the data collection provide insight into which countries are reducing restrictions on school choice and whether or not countries are providing financial incentives to encourage school choice. The results also illustrate whether supports are in place that can ensure that more families can make meaningful school choices.

- **Indicator VII.3: Parent voice (NESLI)**

Description: This indicator focuses on formal opportunities for voice at all level of the education system; the classroom, the school, the district, the state, and the national level. Comparable data is generated related to the existence of parent associations, formalized methods for receiving parent complaints, and the opportunity or requirement for parent involvement on school boards. Variables related to parent voice are important to understand since they illustrate whether parents have the opportunity to vie for educational changes and influence educational policy-making at the school, district, state, and national levels.

ANNEX IV Q2 – DESCRIPTION OF INDICATORS INCLUDED IN THE QUESTIONNAIRE TO ASSESS EXISTING AND POTENTIAL FUTURE INDICATORS ON TERTIARY EDUCATION

I.1 – Structure of tertiary education

Indicator 1: Pathways to tertiary education and from tertiary education to labour market

Rationale:

In ISCED 2011, tertiary education includes four levels, compared to two in ISCED 1997, which provides a more detailed classification. The four levels offer new opportunities to improve the presentation of existing indicators (e.g. employment, graduation and entry rates). They also allow for a better identification and distinction of the diversity of tertiary programmes, notably Bachelor, Master and Doctoral level programmes. And finally, they provide the opportunity to analyse the main pathways chosen by students and how these pathways translate into completion of the level and labour market opportunities.

Data availability:

Most of the data have never been collected. Data on employment will only be available after the implementation of ISCED 2011. Data on average duration of studies are already collected but the currently used methodology will need to be reviewed.

Indicator 2: admission policies to tertiary education

Rationale:

Admission policies to tertiary education differ markedly around the world. In some countries, the secondary-level diploma provides students a legal right to study in any field at university without having to write an exam or go through a screening process. In some others, admission policies exist only for some programmes where for example, the total number of applicants exceeds the number of places available. Lastly, in a last group of countries, tertiary institutions have a selection process that exists for all programmes.

In many countries, access to tertiary studies has changed in recent years: tertiary institutions tend to be more selective than they were 5 decades ago. But what is the proportion of tertiary institutions that are selective, which fields of studies are more selective than others? And which are the education systems offering access to their tertiary education institutions without a selection process? The NESLI network has released an indicator on admission policies at the secondary level of education and the first stage of tertiary education in the 2012 edition of Education at a Glance and is currently developing a survey on admission policies and the number of applications and applicants. NESLI will use this survey to develop an indicator on access and student demand for the first stage of tertiary education (i.e. bachelor's or equivalent level).

Data availability:

NESLI carried out a quick survey on the availability of data on applicants to tertiary type A programmes, first degree in August 2013 and the results from the survey were discussed in the Autumn 2013 NESLI meeting in Tallinn. A first draft of the survey [EDU/EDPC/INES/NESLI(2014)9] has been developed based on the findings and recommendations from the NESLI network and this will be discussed during the spring 2014 NESLI meeting. NESLI will collect the data once the questionnaire is finalised.

Indicator 3: Basic characteristics of tertiary education systems

Rationale:

The massive expansion of tertiary education observed in all the countries over the last decades led to significant changes in the structure of tertiary education. New universities have been built in some countries to ensure the continuity of the expansion of tertiary education whereas other countries have seen the number of students enrolled in each of their universities significantly increase. Another new phenomenon: enterprises participate more actively to the financing and leadership of some tertiary institutions, explaining the increase of private institutions.

Data availability:

An indicator on this topic could be developed for Education at a Glance based on the UOE data collection (e.g. number of private institutions, financing). Moreover, some data already exist at the EU level describing the size of university and the average number of students per university. For the purpose of Education at a Glance, it could be relevant to regroup all the following statistics in an indicator.

I.2 – Teacher qualifications and internationalisation

Indicator 4: Teaching Staff - Who are the teachers in tertiary education?

Rationale:

The characteristics of the academic workforce often reflect the quality of tertiary education, both quantitatively and qualitatively. Given compelling evidence, the quality of teachers is the most significant in-school determinant of student achievement (see PISA 2012). Therefore, many policies have been implemented in OECD countries this last decade to attract top academic talents to the teaching profession and to provide them with high-quality training for primary and secondary levels. However, there is little information about the teaching situation at the tertiary level and even less about who are the teachers working at tertiary level of education?

Data availability:

The UOE data collection provides some basic data about demography of teachers working at tertiary level (e.g. age, gender) and number of academic staff involved in tertiary education. NESLI is currently preparing a survey to collect data on tertiary faculty salaries.. Lastly, the OECD Science, Technology and Industry Directorate (DSTI) also collects other statistics on R&D activities in tertiary education. However, the statistics available on this topic are relatively limited compared to what is collected for the secondary education. Moreover, data on academic staff does not allow distinguishing teachers from researchers[1], which limits the scope of possible analysis.

The new indicator will allow for a better distinction between academic staff time devoted to research and/or time devoted to teaching activities. The indicator could also include metadata on the selection process and educational qualifications requirement (PhD or not?) to become teachers in tertiary education.

[1] Academic staff (as defined in the UOE manual) include those whose primary assignment is instruction, research, or public service but also personnel who hold an academic rank with such titles as professor, associate professor, assistant professor, instructor, lecturer, or the equivalent of any of these academic ranks or personnel with other titles (e.g. dean, director, associate dean, assistant dean, chair or head of department) if their principal activity is instruction or research.

Indicator 5: Internationalisation of tertiary education

Rationale:

The world of tertiary education is evolving rapidly and we need to collect indicators that are reflective of what is happening For example, between 2000 and 2011, the number of international students has more than doubled worldwide. Today, almost 4.5 million tertiary students are enrolled outside of their country of citizenship. The internationalisation of tertiary education is a fact. However, except for measuring student mobility, we still have at this stage few qualitative information and quantitative data to describe this phenomenon.

Today, whether they have to adapt to it or enhance it, countries compete for the market shares of foreign students by developing policies towards internationalisation. This is also materialized by the institutions' will to increase the share of their scientific publications.

Data availability:

No international indicator exists in this Indicator.

I.3 - Access to new technologies

Indicator 6: Development of Massive Open Online Courses (MOOCs)

Rationale:

A Massive Open Online Course (MOOC) is an online course aimed at unlimited participation and open access via the web. In addition to traditional course materials such as videos, readings, and problem sets, MOOCs provide interactive user fora that help build a community for students, professors, and teaching assistants (As). An increasing number of countries perceive MOOCs as an opportunity to provide more education without building more classrooms.

Data availability:

This is a new Indicator for indicator development. No data are available at international level but most of the countries collect data on MOOCS at national level. Indicator

Indicator 7: Access to e-learning

Rationale:

Digital education deeply changes the relationship between students and teachers. More and more universities around the world have developed digital learning resources. Typically, these resources are offered online (although sometimes in print) freely and openly to teachers, educators, students and independent learners in order to be used, shared, combined, adapted, and expanded in teaching, learning and research.

Moreover, universities faced the difficult challenge to adapt their structure to the rapid development of the new technologies. For example, in some countries, all the university classrooms are now equipped with wireless access and individual plugs to connect laptops.

Data availability:

This is a new Indicator for indicator development. No data are available at international level but most of the countries collect data on e-learning at national level. Indicator

I.4 - Equity

Indicator 8: Equity in tertiary education

Rationale:

Few indicators examine the socio-economic status of students enrolled in tertiary education, an important gauge of access to tertiary education for all. In the past, Education at a Glance took a close look at data from ten OECD countries (based on the Eurostudent survey) to examine the occupational status (white collar or blue collar) of students' fathers and the fathers' educational background. However, this indicator has not been published for a long time because of its small coverage and insufficient data quality.

Data availability:

This is a new Indicator for indicator development. International comparable data on the socio-economic status of students in tertiary education were not widely available in the past but many countries improved their national statistics these recent years and now collect "individual data" to evaluate the equity of tertiary education.

I.5 Labour market outcomes

Indicator 9: The career of doctors

Rationale:

Graduates from a doctoral programme are key players in research and innovation. They are specifically trained to conduct research and are considered as the best qualified to create and diffuse scientific knowledge. A majority of doctorate holders follow academic careers in tertiary education and work as researchers and professors. While tertiary education is the main institutional sector of employment for individuals with a doctorate, they are becoming more prevalent in other sectors, particularly in countries with high R&D intensity (OECD Science, Technology and Industry Scoreboard 2013).

Data availability:

INES is collecting some statistics on doctoral programmes via the UOE data collection, and the OECD Science, Technology and Industry Directorate (DSTI) publishes several indicators on doctorate holders in their key publications. For the purpose of Education at a Glance, it could be relevant to group all the following information in a single indicator.

Indicator 10: Employment and earnings of first degree graduates

Rationale:

At the LSO meeting host by the Slovak Republic in February 2014, delegates explored the possibility to develop new indicators in the Indicator of tertiary education. One of the proposals was to collect data on the status and level of income of young graduates. For example, in Israel, a survey analyses employment and earnings of the first degree graduates. These statistics are produced by linking administrative data on

income for three to five years with the full list of graduates of all national Tertiary education institutions, for a number of annual cohorts.

Data availability:

As an example, a first report published in ISRAEL in 2009 reported employment, self-employed activity, job turnover and earnings for a span of up to four years since graduation from a major field of study by type of institution (universities, academic colleges and academic colleges for education). It will be relevant to see if an international indicator could be developed using similar methodologies.

Indicator 11: Skills acquired by students in tertiary education and required by innovative economies

Rationale:

Two already existing international surveys, namely the twin surveys Reflex and Hegesco, provide interesting statistics of tertiary graduates five years after their graduation. The surveys cover 20 countries, but could very well be extended to other countries. Further details about this can be found in the paper "Educating Tertiary Education Students for Innovative Economies: What International Data Tell Us" prepared by the OECD IMEP staff and published in the Tuning Journal for Tertiary Education (see http://www.tuningjournal.org/public/site/01/11_Educating_Tertiary_Education_Students_for_Innovative_Economies.pdf).

Data availability:

The development of new indicators on skills could complement the PIAAC data introduced in Education at a Glance. The LSO network is currently exploring these issues.

Two Indicators are proposed for new indicators. The sources are the twin surveys Reflex and Hegesco launched in 2010.

Critical skills for highly innovative jobs

Reflex and Hegesco identify some specific skills at the individual level that matter for innovation. By comparing (self-reported) job requirements of highly innovative and non-innovative jobs, the most critical skills for innovation (which distinguish innovators from non-innovators) can be identified. "Non-innovative jobs" are defined as those held by professionals reporting that their organisation does not innovate and that they do not contribute to the introduction of innovation.

Respondents to the Reflex and Hegesco surveys were asked to indicate the level of 19 skills that their current job required: "come with news ideas/solutions", "willingness to question ideas", "present ideas in audience", "alertness to opportunities", "analytical thinking", "coordinate activities", "acquire new knowledge", "mobilize capacities of others", "make your meaning clear", "master of your own field", "write reports or documents", "write and speak foreign languages", "use computers and internet", "work productively with others", "use time efficiently", "perform under pressure", "negotiate", "knowledge of other fields", "assert your authority".

The report shows that highly innovative professionals have tertiary job requirements for any single skill than non-innovative professionals. Highly innovative jobs are thus more demanding. The report also shows that the critical skills that distinguish innovators from non-innovators the most are creativity ("come up with new ideas and solutions" and the "willingness to question ideas"), followed by the "ability to present ideas in audience", "alertness to opportunities", "analytical thinking", "ability to coordinate activities", and the "ability to acquire new knowledge".

Fostering skills in tertiary education

Respondents to the Reflex and Hegesco surveys were asked to give a retrospective assessment of the three top strengths and weaknesses of their tertiary education programmes in terms of skills development. Professionals from Europe, Japan and Latin America tend to agree that universities developed mostly their thinking and learning skills (analytical thinking and the ability to rapidly acquire new knowledge) as well as their domain-specific expertise (mastery of their own field or discipline). At the same time, students are dissatisfied with the level of social and behavioural skills acquired through their university programme: former students in Japanese and European universities are much more likely to lament shortcomings of their university programmes regarding the development of social and behavioural skills (collaboration, communication, and leadership skills) than concerning critical thinking and subject-based skills. Some of the critical skills for innovation only receive average assessments: “presenting ideas” comes fourth among weaknesses, and “coming up with new ideas and solutions” is not considered to be a particularly strong point of university education. There may thus be room for improvement in the fostering of these skills.