ANNEX 3

EXPERT GROUP ON GRADUATE TRACKING

Task force 3:

Final conclusions on using administrative data to track graduates at European level

Education and Training

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1.0 Mandate of Task force 3 and methodology

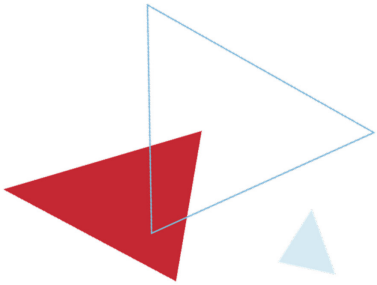
The mandate given to Task force 3 was to analyse in depth the administrative data-based graduate tracking systems currently in place across member states. Administrative data are regularly collected for various purposes by government entities or other public administration offices and stored in different registers (e.g. individual data on social security, taxes, educational attainment, employment, housing, residence, etc.).Although administrative data are not per se collected for research purposes, they can be recognised as relevant data source not only for the production of statistics but for policy research and policy impact evaluation as well.[1]

Building on the analysis of administrative graduate tracking, the group was asked to examine the core indicators that could constitute cross-nationally comparable data. These indicators are structured around the areas of data collection that the Council recommendation on tracking graduates identified as priority: socio-biographical and socioeconomic information; information on education and training; information on employment or further education and training; relevance of education and training to employment or life-long learning; career progression. The group was asked to identify a limited set of key economic and social indicators, which can be considered broadly comparable across (some or all) countries.

The output expected from Task force 3 was a technical paper with a list of core indicators that could be cross-nationally analysed at EU level. The paper should also offer guidance to the Member States on collecting these comparable core indicators through administrative/register data and to identify recommendations for the European Commission on how to integrate these into the future comparable EU data collection on graduate outcomes.

Task force 3 focused its work on the following aspects:

- Graduate identification (e.g. using a unique ID) for graduate tracking on national level and across borders
- Identification of administrative/registry data that could be used for graduate tracking and their availability in the member states
- Prerequisites for the creation of an EU graduate tracking system based on administrative data.



[1] See Nuno Crato, Paolo Paruolo (Eds.), Data-Driven Policy Impact Evaluation, How Access to Microdata is Transforming Policy Design, 1st ed. 2019, SpringerOpen, pp. 3-6, 10.

2.0 Graduate identification

A prerequisite for tracking graduates using administrative data is a unique identifier (ID), which enables the identification of an individual through various registers.

Registers use some type of ID to keep longitudinal records on individuals. Ideally, all registers should use the same ID. Where such a system is not in place, different techniques to identify an individual across various registers can be used to combine partial personal data with a reasonable level of trust. For example, using only the name and surname of a person is not enough for unique identification, but adding information on date, place, and country of birth can raise the likelihood of identifying an individual and hence of linking her/his data from different registers.

Linking individual data across different registers or records falls under the GDPR[2], as all personal data that is not anonymised.

2.1 Tracking individuals without personal ID

The main challenge for graduate tracking via administrative data is to ensure the matching of comparable data of an individual across registers nationally as well as across borders.

For statistical purposes, matching data across different registers can be achieved without the direct use of individual ID data, as demonstrated below by the Austrian example used for graduate employability tracking.

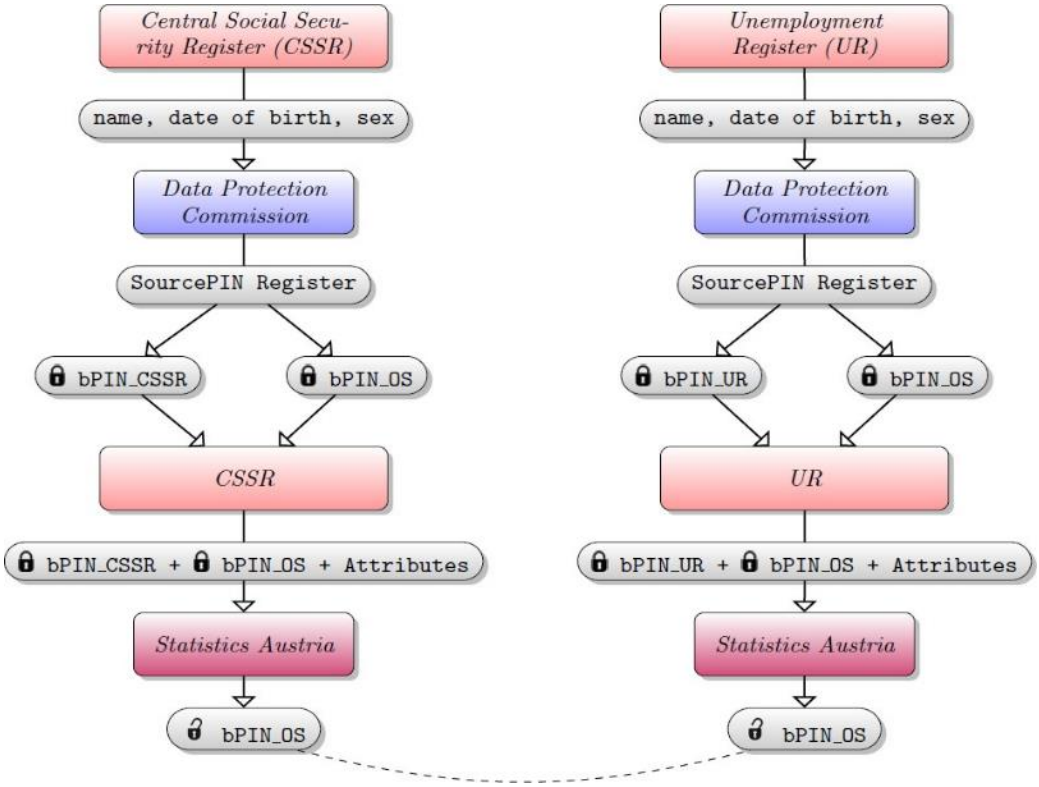
In Austria, the data holders, in this example the Central Social Security Register (CSSR) and the Unemployment Register (UR), independently send the name, date of birth and sex of an individual to the Data Protection Commission (DPC). The DPC identifies the person in each source and derives a branch-specific personal identification number, the so-called bPIN_CSSR or the bPIN_UR respectively.

Every individual has for each register two bPINs: one for the data holder (bPIN_CSSR and bPIN_UR) and the other one for official statistics (bPIN_OS). Both PINs are encrypted and sent back by the Data Protection Commission to the data holder. The data holders (CSSR and UR respectively) provide the encrypted PINs as well as the attributes to Statistics Austria.

Only Statistics Austria can decrypt the bPIN_OS and use them for merging the data of different data holders, like the Central Social Security Register and the Unemployment Register in the example illustrated in Figure 1.

[2] General Data Protection Regulation - Regulation (EU) 2016/679 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data

Figure 1. Example of a data matching process. ©Statistics Austria, Oct. 2018



The Austrian example shows how graduate tracking is possible across registers that use different personal ID numbers at national level.

Tracking an individual across records - at both at national and international level- can be supported by the work done on cross-border identification and authentication of the eIDAS[3] project. In this project, all member states have to ensure that people can use their own national electronic identification schemes (eIDs) to access public services available online in other EU countries. It is a mapping of personal (minimum) information, which includes mandatory attributes (current family name, current first name, date of birth, uniqueness identifier), and optional attributes (first name at birth, family name at birth, place of birth, current address, gender). Although this system cannot be applied directly to graduate tracking at this moment, it should be followed up at a later stage.

2.2 Anonymization vs. pseudonymization

Using data from administrative data sources/registers for graduate tracking purposes requires a legal basis and a consideration of data protection regulations, including when data is pseudonymised.

Following the Opinion 05/2014 on Anonymization Techniques (Article 29 Data protection working Party)[4] *"anonymization results from processing personal data in order to irreversibly prevent identification"*[5] of an

[3] eIDAS - Regulation (EU) N°910/2014 on electronic identification and trust services for electronic transactions in the internal market

[4] ARTICLE 29 DATA PROTECTION WORKING PARTY Opinion 05/2014 on Anonymisation Techniques Adopted on 10 Apil 2014 0829/14/ENWP216 https://ec.europa.eu/justice/article-29/documentation/opinion-recommendation/files/2014/wp216_en.pdf

[5] Ibid. p. 3.

individual. Administrative databases by definition include personal data (name, sex, residence, education, different aspects of social status and individual's social background, income etc.). Before using the data for graduate tracking purposes, adequate anonymization rules including usage of proper anonymization techniques need to be adopted. Adopted anonymization techniques should prevent the possibility to single out an individual, to link records to a specific individual and to infer information concerning a specific individual.[6]

When anonymising data, one should be aware of the fact that anonymization is a “one way road” and therefore a part of the information is inevitably lost. That is why the process should be carefully designed on a case-by-case basis.

An additional aspect to consider concerning usability of the anonymized data for the specific task is the challenge to retain precisely the information that is required for the task.

From a legislative point of view, a considerably demanding requirement is to ensure the existence of a legal basis for usage of administrative data for graduate tracking purposes[7]. Moreover, to be able to link different administrative databases, the legal basis needs to be provided as well.

Unlike anonymised data which does not fall under personal data protection legislation (national and EU GDPR), pseudonymisation is not a method of anonymization and as such falls within the scope of data protection legislation. Pseudonymisation is a way to enrich the information level in time linked to a particular individual as it is planned in Eurograduate tracking. However, Task force 3 believes that pseudonymisation could be used at the national level, and the decision to use it should be left to the member states.

2.3 Tracking of the mobile graduates

With no European ID number and the GDPR constraints on exchange of personal data between the member states, Task force 3 explored the possibility to create a specific indicator on “migration”. The idea is that when a graduate works in a country different from the one he/she graduated from (“receiving” country), public records in the “receiving” country (e.g. on taxes) could include information on the level of education required for the employment and the country where this education was obtained.

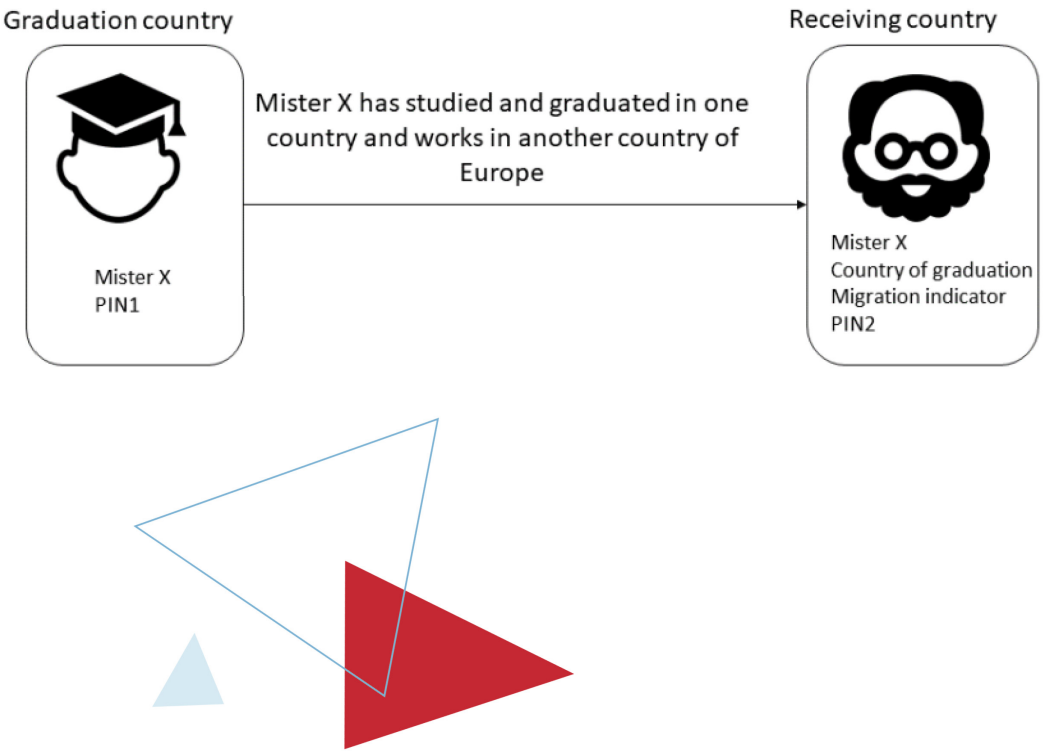
By linking data from registers, data on migrant employment in one country could be linked to graduation data in another country providing that the countries are able to uniquely identify individual. Two options are presented below.

1. The responsibility of linking two Personal Identification Numbers (PIN) could lie with the individual (as it is the case in eIDAS). This proposal relies on the good will of the individual, with the consequence that data could be less reliable, and that only a small number of individuals decide to act, hence limiting the size of the observed population to a point where data could not be used for statistical analysis.
2. Member states set up a system that allows them to track a mobile graduate. This option requires a data exchange protocol between different countries, which creates a legal and administrative challenge that the member states would have to agree on and accept. The situation could become even more complex in the case that a graduate works in more than one “receiving” country, not to mention obtaining new qualifications in countries different from the one in which she/he initially graduated or is currently working in.

[6] Ibid. p. 3.

[7] Tracking graduates does not necessarily mean tracking graduation (one graduate can have several graduations on different EQF levels, attained from different universities, different countries, different study fields etc.)

Figure 2: Process of linking two PINs associated with the same person



3.0 Availability of administrative data across member states

3.1 Administrative data, statistical indicators, and metadata

In this text we use the following definitions:

1. **Data** (source Collins dictionary): information, especially facts or numbers, collected to be examined and considered and used to help decision-making, or information in an electronic form that can be stored and used by a computer
2. **Statistical indicator** (source: Eurostat glossary): A statistical indicator is the representation of statistical data for a specified time, place or any other relevant characteristic, corrected for at least one dimension to allow for meaningful comparisons.
3. **Metadata** (source oxford language): a set of data that describes and gives information about other data.

Based on these definitions, Task force 3 has put together a preliminary inventory of data that can further be used to define statistical indicators needed for graduate tracking. Task force 3 also defined what should be the additional information (metadata) needed to ensure the quality of the original data sets and indicators.

3.2 List of potential administrative data for graduate tracking

In order to explore the possibilities and advantages of administrative data for policy research, Task force 3 tried to identify existing registry data that is already used in the Member states and/or could be used for higher education (HE) and vocational education (VET) graduate tracking at EU level, and make an inventory of its availability in member states.

With the aim to refine the data sources for graduate tracking indicators, a list of 50 data records from administrative sources covering the following categories has been identified (the complete list is annex A):

- General information
- Data on completed study of observed graduation
- Data on international mobility of graduate during study
- Employability at reference point
- Social dimension

3.3 Inventory of the administrative data availability and usability in the member states

Once agreed on the list of data that could be informative for graduate tracking, the task force conducted a survey on the availability of this data in the member states with the objective of learning whether:

- countries are able to unambiguously identify a graduate and then use the same identifier across different registers;
- administrative data is available and what is its potential usability for graduate tracking.

The survey was conducted electronically. Invitation to respond was sent to the representatives of the member states in the Expert group for graduate tracking. The survey was available from April to July 2020.The results of the survey are summarized in Annex B.

The survey showed heterogeneity in data availability between the member states for every set of data. Even if some data are collected and available in every member state, there are many differences that prevent the reliability, and comparability of data between countries and even between different registers in the same country.

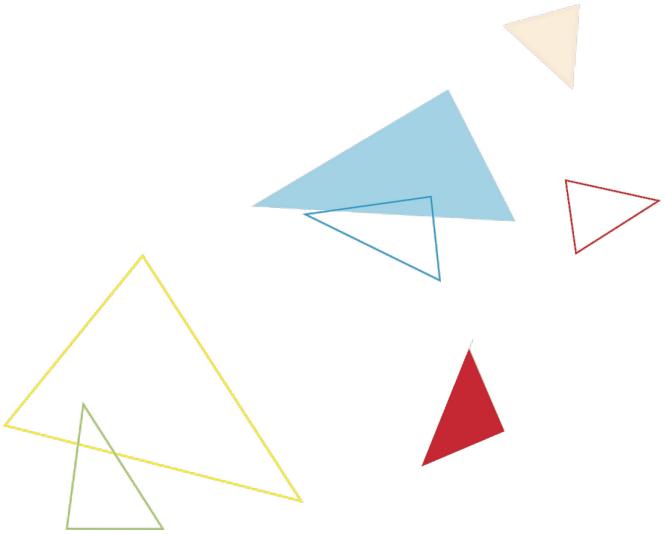
For ensuring data comparability across registers (and across boarders), it is important as a first step to define a clear methodology for data collection. This includes also metadata for each piece of data that would be used for graduate tracking with the following minimum information:

- Name of the data
- Source collecting the data (Authentic source, Registers, HE/VET institution)
- Type of education (VET, HE)
- Used classification (where applicable: ETER, ISCO, NACE, ISCED etc.)
- Mode of collection (survey, registers)
- Level of trust status (Validated, Non validated).

3.4 Moving from administrative data to indicators

Task force 3 tested the feasibility of using administrative data to create indicators which would provide answers to the longlisted policy questions identified by Task forces 1 and 2 as relevant for the EU-wide graduate tracking. .The exercise showed that the generation of indicators (on the basis of administrative data) to reply to the policy questions is possible, but it also identified those policy questions which could only be addressed through surveys (such as evaluation of the quality of learning experience, employee satisfaction, employment experience, etc). The results are presented in annex C.

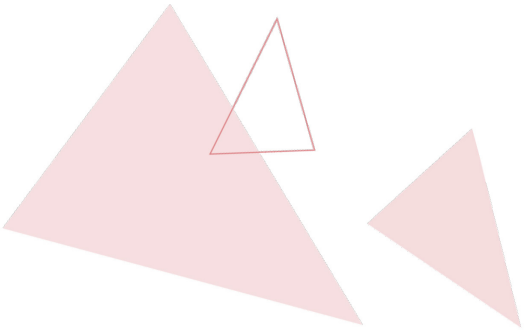
These findings helped to inform the final recommendations of the Expert group in relation to the two lists of information points (essential and recommended) to be collected at national level, of which list A statistics may be in the long run compiled via administrative data and list B via survey data.



4.0 Towards an EU graduate tracking

Based on the results of the survey (Annex B), the work of all task forces, and taking into account the discussions in the meetings of the Expert group on graduate tracking, Task force 3 identified the following prerequisites for establishing an EU graduate tracking system using administrative data:

1. A uniform methodology for collecting individual level graduate tracking data should be set up at the EU level. This will ensure comparability and reliability of data. As the evolution of HE and VET systems and labour market is an ongoing process, the methodology should be re-evaluated periodically.
2. As a first step, graduate tracking at the EU level should be based on Member States reporting commonly agreed indicators which are calculated on the basis of European wide standardised data features (i.e. coverage of entire target population, coverage of specific graduate cohorts for a specific years of graduation etc.).
3. Ultimately, it would be desirable to provide access to anonymised microdata that would allow for an in depth analysis of graduate tracking information at EU level. Prior to that, Member States have to set up an IT system that will enable them to provide high quality data for graduate tracking to a coordinated EU system of information.
4. A clear model of data access and governance should be established. Data collection and processing at the EU level should be entrusted to Eurostat in cooperation with national statistical offices.
5. Data should be made publicly available in coherence with open access politics.



ANNEX A: List of (desired) administrative data for assessment of current state of systems and potential graduate tracking

Nr.	HE/ VET/ Both	Category*	Variable name	Variable description
1	Both	General	**ID**	Each graduate has a unique identifier set on a national or country level. (Not institutional level; e.g. enrolment number.)
1A	Both	General	**ID subquestion A**	How is the ID called in your country?
1B	Both	General	**ID subquestion B**	Is this ID used on national level in other databases?
1C	Both	General	**ID subquestion C**	Can ID be used for matching data on graduate from different databases?
1D	Both	General	**ID subquestion D**	Do foreign students obtain this ID?
2	Both	General	**Sex**	Sex of graduate. Sex is the combination of biological and physiological characteristics that define person to be either male or female. Values: male, female
3	Both	General	**Date of Birth**	Date of birth of graduate. Value: date or equivalent data from which the age of the graduate can be determined
4	Both	General	**Current name**	Current first and family name of graduate
4a	Both	General	**Name at graduation**	First and family name at graduation
5	Both	General	**Current location of residence**	Current location of residence of graduate at least at NUTS 2 regional level according to Nomenclature of Territorial Units for Statistics (or equivalent data e.g. region, ZIP code, city).
5a	Both	General	**Current contact data of graduate**	E-mail address and/or phone number
6	Both	General	**Location of residence at graduation**	Location of residence of graduate at graduation at least at NUTS 2 regional level according to Nomenclature of Territorial Units for Statistics (or equivalent data e.g. region, ZIP code, city).
7	Both	General	**Location before enrolling into higher education or VET**	Location of residence before enrolling into higher education or VET at least at NUTS 2 regional level according to Nomenclature of Territorial Units for Statistics (or equivalent data e.g. region, ZIP code, city).
8	Both	General	**Citizenship**	Citizenship of graduate
9	Both	General	**Country of birth**	Country in which a graduate was born
10	HE	General	**Country of secondary education**	Country in which a person finished ISCED level 3 - upper secondary education
11	Both	General	**Country of previous completed education**	Country in which graduate completed the education needed for entering the programme which is subject of tracking graduate
12	Both	Data on completed study of observed graduation	**Date of graduation**	Date, month and year of graduation.
13	Both	Data on completed study of observed graduation	**Institution of graduation**	Name and/or code (national or other identifier) of the institution of observed graduation.

14	HE	Data on completed study of observed graduation	**Type of institution**	Universities, universities of applied sciences and other institutions providing higher education.
15	Both	Data on completed study of observed graduation	**Study programme**	Code (national or other identifier) and/or name of study programme
16	Both	Data on completed study of observed graduation	**Mode of study**	Values: Full-time, Part-time
17	Both	Data on completed study of observed graduation	**Distance learning**	Were studies organised as distance learning.
18	Both	Data on completed study of observed graduation	**Length of study programme**	Official or accredited duration of completed study programme in years.
19	HE	Data on completed study of observed graduation	**Volume of learning in ECTS**	Official or accredited student workload of completed study programme in ECTS.
20	VET	Data on completed study of observed graduation	**Volume of learning in ECVET**	Official or accredited VET student workload of completed study programme in ECVET.
21	Both	Data on completed study of observed graduation	**Actual duration of study until completion**	The number of years from enrolment into study programme to its completion (excluding gap years)
22	Both	Data on completed study of observed graduation	**Field of education**	The field of education completed at observed graduation according to ISCED-F 2013.
23	HE	Data on completed study of observed graduation	**Level of formal education at graduation (Level of degree)**	Level of completed education at observed graduation according to ISCED 2011.
24	VET	Data on completed study of observed graduation	**Level and orientation of formal education at graduation (Level of degree)**	Level or orientation of completed education at observed graduation according to ISCED 2011.
25	Both	Data on completed study of observed graduation	**Level of qualification at graduation (qualification level)**	Level of qualification according to the national qualification framework and equivalence with the European Qualification Framework (EQF)
26	Both	Data on completed study of observed graduation	**Compulsory practical experience during study**	Curriculum of completed studies included compulsory practical education (e.g. student internship, practical training, or other type of work experience/work based learning).
27	Both	Data on completed study of observed graduation	**Competencies/ learning outcomes at graduation**	List of formally desired competences obtained with completing the studies. (For example, data collected for national qualifications framework, reported for European qualifications framework.)
28	Both	Additional data on graduate	**Level of most recent formal education**	Level of current/most recent attained formal education according to ISCED 2011.
29	Both	Additional data on graduate	**Level of highest formal education**	Level of highest attained formal education according to ISCED 2011. The value can be the same as “Level of formal education at graduation” or higher.
30	Both	Data on international mobility of graduate during study	**Participation in mobility**	Did graduate participate in mobility during his studies (YES/NO).
31	Both	Data on international mobility of graduate during study	**Destination country of mobility**	Receiving Organisation Country. The country of the receiving organisation.
32	Both	Data on international mobility of graduate during study	**Total duration of mobility**	Total duration of the international mobility or exchange graduate participated in during his/her study and/or degree mobility.

33	Both	Data on international mobility of graduate during study	**Type of mobility**	Data is collected on type of mobility (Erasmus + types of mobility or equivalent and other).
34	Both	Employability at reference point**	**Main activity status**	The main activity status is graduates most important activity at the reference period (Student, pupil; Employed; Unemployed; Compulsory military or civil service (if applicable); Maternity leave (if applicable); Other; No data).
35	Both	Employability at reference point**	**Full- or part-time main job**	The usual time-involvement in the main job of a graduate in employment. Values: Full-time job; Part-time job; No data.
36	Both	Employability at reference point**	**Type of contract**	Temporary or open-ended contracts
37	Both	Employability at reference point**	**Employment status (Type of employment):**	
			subquestion A: Employed	Is graduate employed (YES/NO).
			subquestion B: Unemployed	Is graduate unemployed (YES/NO).
			subquestion C: In formal education	Is graduate in formal education (YES/NO). If YES subquestion C-1 follows.
			subquestion C-1: At which level of education	Level of education according to ISCED 2011.
			subquestion D: Other	If YES, please provide information which status.
38	Both	Employability at reference point**	**Economic activity of the local unit for main job**	The variable determines the economic sector or activity of the local unit (enterprise) in which the main job – of a person in employment – is located, according to the categories set up by the Statistical Classification of Economic Activities (NACE) Rev.2.
39	Both	Employability at reference point**	**Occupation in main job**	The variable determines occupation in the main job of a person in employment, classified according to the categories set out by ISCO-08 (International Standard Classification of Occupations, version 2008) or other classification for occupation in which case please provide information which one under comments.
40	Both	Employability at reference point**	**Region of local unit for main job**	Region of the local unit (enterprise) company according to NUTS -Nomenclature of Territorial Units for Statistics
41	Both	Employability at reference point**	**Employment previous to graduation**	If graduate was employed before, he/she graduated. Values: yes, no.
42	Both	Employability at reference point**	**Time until first job after graduation**	How fast graduate got her/his first job after graduation (month, years). For graduates that were already employed value is 0.
43	Both	Employability at reference point**	**Unemployment after graduation**	Data on fact, if graduate registered as unemployed after graduation (at first reference period after graduation).
44	Both	Employability at reference point**	**Unemployment at reference period**	Is graduate registered as unemployed at the time of reference period?

45	Both	Employability at reference point**	**Earnings at reference period**	How much a graduate earns.
46	Both	Social dimension	**Scholarship during studies**	Graduate had a scholarship of other type of subsidy that was needs based.
47	Both	Social dimension	**Employment status of father and mother**	At the beginning of graduate's studies are mother and father employed, not employed, retired, dead.
48	Both	Social dimension	**Labour market status of father and mother**	At the beginning of the studies: The main activity status of parents. Values by the importance of activities for graduate tracking: - Employed - Self employed - Unpaid family worker - Housewife - Civil servant/ public servant - Other
49	Both	Social dimension	**Highest formal education of father and mother**	At the beginning of the studies: Variable should capture the highest formal education of both parents, e.g. - Mandatory school - Elementary vocational training - Middle School - Advanced vocational training - High School - Academy - University / University of Applied Sciences
50	Both	Social dimension	**Graduation marks**	Obtained grades for observed graduation.

* Categories in first column are there just for orientation to indicate how the variables are grouped.

** Reference point: point in time after graduation, when the employability is checked. (e.g. Eurograduate has 1 year after graduation and 5 years after graduation).

(1) Variable is included in EUROSTAT's contribution to the meeting of Expert group on graduate tracking on 26th/27th February 2019 - Summary of work done by Eurostat on standardisation of variables collected in different social data collections, which could be relevant to development of national graduate tracking indicators.

(2) Variable is part of the minimum data set of person identification data uniquely representing a natural person according to EU Regulation 910/2014 of 23 July 2014 on electronic identification and repeals directive 1999/93/EC from 13 December 1999. So-called eIDAS (electronic IDentification, Authentication and trust Services) is an EU regulation on / a set of standards for electronic identification and trust services for electronic transactions in the European Single Market. It entered into force on 17 September 2014 and applies from 1 July 2016 except for certain articles, which are listed in its Article 52. All organizations delivering public digital services in an EU member state must recognize electronic identification from all EU member states from September 29, 2018.

Glossary:

> **Graduate:** Graduates are those who successfully complete an educational programme during the reference year of the data collection. (UOE manual: https://ec.europa.eu/eurostat/cache/metadata/Annexes/educ_uoe_enr_esms_an1.htm#G)

> **Employed person:** https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Employed_person_-_LFS

> **Employment:** (Eurostat: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Employment)

> **Local unit:** The local unit is an enterprise or part thereof (e.g. a workshop, factory, warehouse, office, mine or depot) situated in a geographically identified place. At or from this place economic activity is carried out for which - save for certain exceptions - one or more persons work (even if only part-time) for one and the same enterprise. (Eurostat: https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Local_unit)

ANNEX B: Results of the survey on the availability of administrative data for graduate tracking in EU member states

Responding countries

20 member states out of 27 had replied to the survey, representing a participation rate of 70%.

Table 1: Participation of the member states to the survey

Responding countries	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Luxembourg, Netherlands, Poland, Romania, Slovenia, Sweden
Not responding countries	Hungary[8], Italy, Latvia, Lithuania, Malta, Portugal, Slovakia

The results of the analysis do not reflect the entire availability of administrative data across the EU, but only what is available in the individual responding countries. It does not give any information of a possible existing or non-existing pool of available administrative data in the non-responding countries.

Thus, it is impossible at this stage to make a projection if the reason why some member states did not reply is linked to:

- the fact that they do not collect data;
- the collection is not nationally organized;
- independent reason (lack of resources, lack of time, change in priorities linked to the corona virus epidemic,…).

However, the good level of participation demonstrates the interest of the member state in the question of tracking the graduates.

Reading the tables

To simplify the reading of the results, a code is used in the tables:

- N: data not available and/or not usable
- Y: data available and/or usable
- U: availability and/or usability uncertain
- D: depending the type of education (VET or HE)
- -: not applicable or no record in the database

Respondents

Out of 20 member states, the total number of respondents was 23.

In some countries, there was more than one participant for different reasons:

- In Belgium, education is organised by the Flemish community in the north of the country and the French communities in the south. Education in Brussels is driven by the two communities. So, as the

[8] The national-level VET graduate tracking indicators development project has started in Hungary in March 2020, financed by a specific ESF project (EDIOP-625-2019). This project will explore new methods using administrative data sources. Therefore it is early stage to respond to the survey questions but this will be possible when the project has reached the appropriate level of maturity.

representatives of the two communities had replied, the results will be referred to the Flemish community by Belgium (NL) and two French communities in Belgium (FR) in the rest of the document.

- In some countries, information for VET and for HE has been given by two different persons (Slovenia, Ireland and Romania).
- 13/23 respondents work for the ministry of education, 2/23 for a higher education institution and 8/23 for other organisations linked to the ministry of education for specific missions (research, funding,…). There is no respondent identified from the job market or social security sector.
- There is only one country (Cyprus) for which it has been declared that no data are available. So, Cyprus has been excluded from the rest of the analysis. Therefore, the analysis concerns 18 member states, with 2 entities in Belgium.
- Replies for Finland could not be inserted in the final tables because of the survey was answered after the limit date but the results have been included in the final conclusion and have been taken in account in the recommendations

The next table links the respondents with the level of education he/she will provide answers for with 3 potential values: higher education only (HE), vocational training only (VET) or both.

Table 2: Education per respondent per member state

	Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
		FR	NL																
One respondent for HE	X							X	X	X	X	X	X			X	X	X	
One respondent for VET				X		X						X				X	X		
One respondent for both		X	X		X		X							X	X				X

7 respondents provided information for both, 5 for VET only and 9 HE only.

The survey could not answer directly to the fact that there are no data available for one type of education or the other one, when the respondent identified only one type of education he is providing information for.

Existence of a central statistical entry point in the member states

This question aims to identify if a centralized statistical unit in charge of tracking the graduates at national level exists.

Table 3: Existence of a centralized national unit in charge of tracking the graduates per member state

	Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
		FR	NL																
Centralized statistical unit	Y	N	Y	N	N	N	Y	Y	N	N	N	N	N	Y	Y	N	N	N	Y

If some countries have already organised a central point in charge of tracking the graduates, it is not a generality as only 8 out of 18 declared that a structure in charge of tracking the graduate. In Belgium, a central point exists only in the Flemish part of the country.

By crossing table 1 and table 2, it comes out that although there is no national centralisation of tracking of graduates in Belgium FR and in Croatia, administrative data collection for HE and VET is possible.

When it exists, it looks that the tracking of graduate could concern both types of education (HE and VET) but the way the question was set does not give any certitude on this point. The type of education identified by the participant is linked to the availability of data and not to the fact that the tracking is organised for HE, VET or both types of graduates.

The unambiguous identification of the graduate

Tracking graduates implies the necessity to identify precisely the person to follow during a period of time after graduation, what is his/her s professional path. So the question of the potential existence of a unique, reliable ID number associated to each national and to resident alien was asked to the representative of the different member states.

Table 4: ID number information per member state

	Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
		FR	NL																
Unique ID	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Used in different database	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Link between database	Y	Y	Y	Y	Y	U	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y
ID number for resident aliens	Y	Y	Y	Y	Y	U	Y	Y	Y	N	N	Y	U	Y	Y	Y	Y	Y	Y

Out of 18 member states, 15 countries use a unique ID number to identify nationals and out of these 15, 12 countries give also a unique ID to the foreigner resident. This ID number can be used as a link between different national databases. So the capacity of enrichment of information exists in 80% of member states having a unique ID system and for the entire population.

At least for the majority of member states, the identification of the graduate at the national level is precise and the link between databases containing information on the graduates is doable with a good confidence. However, the non-existence of a unique ID in a few countries will involve using a combination of identification data to have a good chance to identify precisely the graduate (family name, first name, date of birth, place of birth).

The existence of a national ID number does not help to provide a way to follow cross border graduates inside the European Union. At this stage, as a unique EU ID number does not exist, the way to identify graduates cross-border has to be imagined outside of the combination of unique ID numbers because these ID numbers have only a national reality and some countries do not have a unique ID number system at all or do not cover the entire population.

The cross-border identification has to be seen as a complexification of the establishment of a general European tracking system as it implies complex GDPR issues linked to frame of data exchange between different countries and/or the capacity of completion of data from different member states based on identification microdata.

B.1 The inventory of common administrative data set

B. 1.1 Description of the questions of the survey

The electronic survey aims to identify in the member states what sets of administrative data were available to give the following information.

- Identifying the graduate with certitude
- Picturing the graduate in his/her personal context (age, location, sex,…)
- Positioning the context of the diploma (type of education, field, type of institution,…)
- Following his/her career at specific time points after graduation

An invitation to fill the questionnaire has been sent to the representatives of the different member states of the expert group. The results are summarized in the next tables.

For each data the questions were:

- Is the data collected?
- Could the data be derived if it is not collected?
- Is the data covering the entire population?
- Is the data already used to track graduates?
- If it is not already the case, could the data be used?

The definition and the format of data was provided in the questionnaire to guide the participants.
For each section, a table containing availability and usability per data for the 19 member states (as Finland replies could not be integrated in the figures and tables as mentioned before) and the availability and usability per data per member state.[9]

B. 1.2 Analysis

GENERAL INFORMATION ON GRADUATES

Table 5: Availability and usability of graduate general information in member states participating in the survey of Task force 3.

		NUMBER OF MEMBER STATES		
Name of the set	**Variable**	**Where the data is available**	**Where it is available but not usable**	**For which the information is uncertain to availability and/or to usability**
Personal information	Sex	18/19	1/19	
	Date of birth	18/19	1/19	
	Current name	11/19	3/19	2/19
	Name at graduation	14/19	2/19	2/19
	Citizenship	18/19		9/19
	Country of birth	15/19		2/19
Location information	Current location of residence	15/19	1/19	1/19
	Current contact data of graduate	15/19	1/19	5/19
	Location before enrolling in HE or VET	18/22	3/22	1/22
	Location at graduation	17/19	1/19	3/19
Country of previous education	Country of secondary education	8/19		3/19
	Country of previous completed education	9/19		6/19

[9] Each Belgian community has been « counted » as a country

Table 6: Availability and usability of individual information per member state

Name of data		Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
			FR	NL																
Sex	Available/derivable	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	U	Y	Y	Y	N	-	Y	Y	Y	Y	Y	Y	Y	Y
Date of birth	Available/derivable	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	U	Y	Y	Y	N	-	Y	Y	Y	Y	Y	Y	Y	Y
Current name	Available/derivable	N	Y	Y	Y	Y	N	N	Y	N	N	Y	Y	Y	N	Y	U	D	Y	Y
	Used/Usable	-	Y	Y	Y	Y	-	-	N	-	N	Y	Y	Y	-	Y	Y	D	Y	Y
Name at graduation	Available/derivable	Y	Y	Y	Y	Y	N	N	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	N	Y	Y	Y	Y	-	-	N	Y	-	-	Y	Y	-	U	Y	D	Y	Y
Citizenship	Available/derivable	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	U	Y	Y	Y	U	-	D	U	Y	U	U	D	Y	U
Country of birth	Available/derivable	Y	Y	Y	Y	Y	N	Y	Y	N	N	U	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	-	Y	Y	-	-	-	Y	U	Y	Y	Y	Y	Y	Y

GDPR issues limit the access to the names of the graduates in a lot of member states (Austria, Czech republic, Denmark, France, Germany and Netherlands) but with the exception of Germany, these countries use the unique ID number to identify at least their nationals and for the majority resident aliens.

Limitation of access to personal data could be linked to different situations following the countries:

- The information is limited to nationals or resident aliens still in residence in the country when the information is contained in national registers instead of statistical databases
- The consent of the persons for statistical use is previously needed
- The information is partial or transformed to ensure anonymization (year of birth or age instead of full date)
- The direct link to information as date of birth or sex is limited but the deconstruction of the unique ID number could give the information as it is coded in the structure of the number.

Table 7: Availability and usability of location and contact information per member state

Name of data		Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
			FR	NL																
Current location of residence	Available/derivable	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	N	Y	Y	Y	Y	D	D	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	U	Y	Y	-	N	-	Y	Y	Y	Y	D	D	Y	Y
Current contact data	Available/derivable	N	N	Y	U	N	N	Y	N	N	N	Y	Y	Y	N	Y	D	D	Y	Y
	Used/Usable	-	-	Y	U	-	-	Y	-	-	-	Y	Y	U	-	N	D	D	Y	Y
Location before enrolling in HE or VET	Available/derivable	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	D	Y	Y
	Used/Usable	Y	Y	U	Y	U	-	U	U	U	U	-	Y	U	Y	U	U	D	Y	Y
Location of residence at graduation	Available/derivable	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	-	Y	Y	U	N	-	y	Y	Y	Y	D	Y	Y	Y

If information of residence at graduation is quite often available, the use of information about location before enrolling in HE or VET is more uncertain. The contact information of the graduates is not kept at a centralized level very often or not available because of the GDPR issues. So, another way to get the contact information (e.g. at education institution level via the alumni network) is probably a way to explore in parallel. It has as implication that HE and VET institutions have to be active partners of a eurograduate tracking system based on a survey strategy.

Table 8: Availability and usability of country of previous education per member state

Name of data		Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
			FR	NL																
Country of secondary education	Available/derivable	U	Y	Y	-	Y	-	N	N	N	N	U	N	Y	Y	N	Y	Y	Y	N
	Used/Usable	-	Y	Y	-	Y	-	-	-	-	-	-	-	U	Y	-	Y	Y	Y	-
Country of previous completed education	Available/derivable	U	D	Y	Y	Y	N		Y	Y	N	U	D	Y	Y	N	D	Y	Y	N
	Used/Usable	-	D	Y	Y	Y	-		N	U	-	-	D	U	Y	N	D	D	y	-

The information about country of previous education is often missing because the kept information is that the diploma of previous education has been verified but not the country of origin.

COMPLETED STUDY

In general, data on completed study are collected in the 19 member states and they seemed to be more complete for HE than for VET.

Table 9: Availability and usabilility of completed study information

		NUMBER OF MEMBER STATES		
Name of the set	**Variable**	**Where the data is available**	**Where it is available but not usable**	**For which the information is uncertain to availability and/or to usability**
Diploma characteristics	Date of graduation	19/19	1/19	2/19
	Institution of graduation	19/19	2/19	
	Type of institution	19/19	1/19	1/19
	Study program	19/19	1/19	1/19
Modality to the organization of study	Mode of study	17/19	1/19	2/19
	Distance learning	7/19		4/19
	Length of study program	18/19		1/19
	Volume of learning in ECTS	15/22	1/19	1/19
	Volume of learning in cVET (VET only)	0/12[10]		1/12
	Actual duration of study until completion	15/19	1/19	3/19
Education	Field of education	15/19		4/19
	Level of formal education at graduation level of degree	14/19	1/19	5/19

[10] 12 member states had replied for VET

	Level and orientation of formal education at graduation (level degree)	11/19	1/19	13/19
	Level of qualification at graduation (qualification level)	17/19		5/19
	Level of most recent formal education	15/19	1/19	3/19
	Level of highest formal education	16/22		2/19
Learning outcomes	Compulsory practical experience during study	9/19		3/19
	Competencies/ learning outcomes at graduation	8/19		5/19

Table 10: Availability and usability of diploma characteristics per member state

Name of data		Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
			FR	NL																
Date of graduation	Available/derivable	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	U	Y	Y	Y	N	Y	Y	Y	Y	Y	D	Y	Y	Y
Institution of graduation	Available/derivable	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	N	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Type of institution	Available/derivable	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	U	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Study program	Available/derivable	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	U	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y

This set of data is collected in all the member states. The access to this site is not possible only in Germany. There is an incertitude for the usability in the Czech Republic.

The date format could vary as in some countries, graduation could be linked to a precise date, or a month in a year or even to only an academic year.

Table 11: Availability and usability of diploma characteristics per member state

Name of data		Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
			FR	NL																
Mode of study	Available/derivable	N	Y	D	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	-	Y	Y	Y	Y	U	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Distance learning	Available/derivable	U	Y	N	N	N	Y	N	N	Y	N	Y	Y	U	N	N	D	D	Y	Y
	Used/Usable	-	Y	-	-		U	-	-	U	-	Y	Y	-	-	-	Y	D	Y	Y
Lenght of study program	Available/derivable	Y	Y	D	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	U	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Volume of learning in ECTS	Available/derivable	Y	Y	D	-	Y	-	Y	Y	Y	Y	Y	Y	U	Y	Y	Y	-	Y	Y
	Used/Usable	U	Y	Y	-	Y	-	U	Y	U	N	Y	Y	U	Y	U	U	-	Y	Y
Volume of learning in cVET (VET only)	Available/derivable	-	-	-	N	-	U	-	-	-	-	-	N	-	-	-	N	Y	-	-
	Used/Usable	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Y	-	-
Actual duration of study until completion	Available/derivable	Y	Y	D	Y	Y	U	Y	Y	N	Y	Y	D	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	-	Y	Y	-	N	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 12: Availability and usability of education data per member state

Name of data		Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
			FR	NL																
Field of education	Available/derivable	Y	Y	Y	Y	Y	Y	Y	Y	Y	U	U	Y	Y	Y	Y	Y	D	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	U	Y	Y	Y	-	-	Y	Y	Y	Y	Y	D	Y	Y
Level of formal education at graduation level of degree	Available/derivable	Y	Y	Y	-	Y	-	Y	Y	U	Y	U	Y	Y	Y	Y	U	Y	Y	Y
	Used/Usable	Y	Y	Y	-	Y	-	Y	Y	-	N	-	Y	Y	Y	Y	-	Y	Y	Y
Level and orientation of formal education at graduation (level degree)	Available/derivable	-	N	Y	Y	Y	Y	Y	Y	-	-	-	Y	-	-	Y	Y	Y	-	Y
	Used/Usable	-	-	U	Y	U	U	Y	Y	-	-	-	Y	-	-	U	Y	U	-	Y
Level of qualification at graduation (qualification level)	Available/derivable	Y	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	D	Y	Y
	Used/Usable	Y	Y	Y	Y	U	U	U	Y	Y	-	Y	Y	Y	Y	Y	Y	D	Y	Y
Level of most recent formal education	Available/derivable	Y	N	N	Y	Y	Y	Y	Y	Y	Y	U	D	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	-	-	Y	Y	U	Y	Y	Y	N	-	D	Y	Y	Y	Y	Y	Y	Y
Level of highest formal education	Available/derivable	Y	Y	N	N	Y	Y	Y	Y	N	N	U	D	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	-	-	Y	U	Y	Y	-	-	-	D	Y	Y	Y	Y	Y	Y	Y

Table 13: Availability and usability of learning outcomes data per member state

Name of data		Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
			FR	NL																
Compulsory practical experience during study	Available/derivable	Y	N	N	Y	N	N	Y	Y	N	U	N	Y	Y	N	N	Y	Y	Y	N
	Used/Usable	U	-	-	Y	-	-	Y	U	-	-	-	Y	Y	-	-	Y	Y	Y	-
Competencies/ learning outcomes at graduation	Available/derivable	Y	N	Y	N	Y	U	N	Y	N	U	N	N	Y	N	N	Y	Y	Y	N
	Used/Usable	U	-	N	-	U	-	-	U	-	-	-	-	Y	-	-	Y	Y	Y	-

If the characteristics of the studies are usually available with a good confidence, the level of less formal information as learning outcomes is relatively poor.

MOBILITY

Data on mobility are usually limited to HE graduates, information on VET mobility is quite often absent. Information on mobility also cover usually Erasmus mobility (information already available in EU databases) and does not refer to other types of mobility. These data are contained in institution/school information systems or national Erasmus centers.

Table 14: Availability and usability of mobility data per member state

Name of data		Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
			FR	NL																
Participation in mobility during study	Available/derivable	Y	D	D	Y	Y	U	Y	Y	Y	Y	Y	N	Y	N	N	D	D	Y	D
	Used/Usable	Y	D	D	Y	Y	-	Y	Y	Y	N	Y	-	Y	-	-	D	D	Y	D
Destination country of mobility	Available/derivable	Y	D	D	Y	Y	U	Y	Y	Y	Y	Y	N	Y	N	N	N	D	Y	D
	Used/Usable	Y	D	D	Y	Y	-	Y	Y	Y	N	Y	-	Y	-	-	-	D	Y	D
Total duration of mobility	Available/derivable	Y	D	D	Y	Y	U	Y	Y	Y	Y	Y	N	Y	N	N	D	D	Y	D
	Used/Usable	Y	D	D	Y	Y	-	Y	Y	Y	N	Y	-	Y	-	-	D	D	Y	D
Type of mobility	Available/derivable	Y	D	D	Y	Y	U	Y	Y	Y	Y	Y	N	Y	N	N	D	D	Y	D
	Used/Usable	Y	D	D	Y	Y	-	Y	Y	Y	N	Y	-	Y	-	-	D	D	Y	D

EMPLOYMENT

Table 15: Availability and usability of employment information

		NUMBER OF MEMBER STATES		
Name of the set	**Variable**	**Where the data is available**	**Where it is available but not usable**	**For which the information is uncertain to availability and/or to usability**
Characteristic of employment	Main activity status	10/19		1/19
	Full- or part-time main job	12/19	5/19	1/19
	Type of contract	9/19		2/19
Status of employment	Is the graduate employed?	13/19	3/22	4/19
	Is the graduate unemployed?	15/19		2/19
	other employment status	11/19		2/19
Activity	Economic activity of the local unit for main job	13/19		2/19
	Occupation in main job	7/19		3/19
	Region of local unit for main job	12/19	3/19	2/19
Employment before/after graduation	Employment previous to graduation	13/19	1/19	3/19
	Time until first job after graduation	13/19	1/19	3/19
	Unemployment after graduation	13/19	1/19	1/22
Data at reference point	Unemployment at reference period	15/19	1/19	3/19
	Earnings at reference period	14/19		2/19

Table 16: Availability and usability of employment data per member state

Name of data		Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
			FR	NL																
Main activity status	Available/derivable	Y	Y	N	N	N	N	Y	Y	U	N	N	Y	Y	Y	Y	N	N	Y	Y
	Used/Usable	Y	Y	-	-	-	-	Y	Y	-	-	-	Y	Y	Y	Y	-	-	Y	Y
Full- or part-time main job	Available/derivable	Y	Y	Y	U	Y	U	Y	Y	U	N	N	Y	Y	Y	Y	Y	D	Y	N
	Used/Usable	Y	Y	Y	U	Y	-	Y	U	-	-	-	Y	Y	Y	N	Y	D	Y	-
Type of contract	Available/derivable	N	Y	Y	Y	Y	N	N	N	U	N	N	Y	Y	Y	N	Y	D	Y	N
	Used/Usable	-	Y	Y	Y	Y	-	-	-	-	-	-	Y	Y	Y	-	Y	D	Y	-
Type of employment: employed	Available/derivable	Y	Y	Y	Y	Y	N	Y	Y	U	N	N	D	Y	Y	Y	Y	D	Y	Y
	Used/Usable	Y	Y	N	Y	N	-	Y	Y	-	-	-	D	N	Y	Y		D	Y	Y
Type of employment: unemployed	Available/derivable	Y	Y	Y	Y	Y	N	Y	Y	U	N	N	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	-	Y	Y	-	-	-	Y	Y	Y	Y	Y	Y	U	Y
Type of employment : other employment status	Available/derivable	Y	Y	N	Y	Y	Y	Y	Y	U	N	N	N	U	Y	Y	Y	U	N	Y
	Used/Usable	Y	y	-	Y	U	U	Y	Y	-	-	-	-	-	U	Y	N	-	-	Y
Economic activity of the local unit for main job	Available/derivable	Y	Y	Y	Y	Y	N	Y	Y	U	N	N	Y	Y	Y	Y	Y	D	N	Y
	Used/Usable	Y	Y	Y	Y	Y	-	Y	Y	-	-	-	Y	Y	Y	Y	Y	D	-	Y
Occupation in main job	Available/derivable	N	U	N	Y	Y	N	Y	Y	U	N	N	N	N	N	N	Y	D	Y	Y
	Used/Usable	-	-	-	Y	Y	-	Y	Y	-	-	-	Y	-	-	-	Y	D	-	Y
Region of local unit for main job	Available/derivable	Y	Y	N	Y	Y	N	Y	Y	U	N	N	Y	Y	N	Y	Y	D	Y	Y
	Used/Usable	Y	Y	-	Y	N	-	Y	Y	-	-	-	Y	Y	-		Y	D	n	Y
Time until first job after graduation	Available/derivable	Y	Y	Y	Y	Y	U	Y	U	U	N	N	D	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	-	Y	-	-	-	-	D	Y	Y	Y	Y	Y	Y	Y
Employment previous to graduation	Available/derivable	Y	Y	Y	Y	Y	N	Y	Y	U	N	N	D	Y	Y	Y	Y	D	Y	Y
	Used/Usable	Y	Y	Y	Y	Y	-	Y	Y	-	-	-	D	Y	Y	Y	Y	D	N	Y
Unemployment after graduation	Available/derivable	Y	Y	Y	Y	N	Y	Y	Y	U	N	N	D	Y	Y	Y	Y	D	Y	Y
	Used/Usable	Y	Y	N	Y	-	Y	Y	Y	-	-	-	D	Y	Y	Y	Y	D	U	Y
Earnings at reference period	Available/derivable	Y	Y	Y	Y	Y	N	Y	Y	U	-	N	Y	Y	Y	Y	Y	N	Y	Y
	Used/Usable	Y	Y	Y	Y	U	-	Y	Y	-	-	-	Y	Y	Y	Y	Y	-	N	Y
Unemployment at reference period	Available/derivable	Y	Y	Y	Y	Y	N	Y	Y	U	N	N	Y	Y	Y	Y	Y	Y	Y	Y
	Used/Usable	Y	Y	N	Y	U	-	Y	Y	-	-	-	Y	Y	Y	Y	Y	Y	U	Y

This information is often not included in the same database than the one managing Information about studies. Consequently, respondents are less certain about the availability of the data or the legal context it can be used.

Employment information are only available if the person is still living in the country of graduation. So, no information about migrating graduates is maintained in the member state where the graduate got his/her diploma.

Respondents identified two sources of data: surveys realized on samples and national registry.

When data exist on employed status, it concerns all types of job, including formal education.

SOCIAL DIMENSION

Table 17: Availability and usability of social dimension information

		NUMBER OF MEMBER STATES		
Name of the set	**Variable**	**Where the data is available**	**Where it is available but not usable**	**For which the information is uncertain to availability and/or to usability**
Scholarship	Scholarship during studies	11/19		3/19
Study information on parents education	Employment status of father and mother	9/19		6/19
	Labour market status of father and mother	8/19		6/19
	Highest formal education of father and mother	6/19	-	3/19
Marks	Graduation marks	10/19	2/19	1/19

Table 18: Availability and usability of social dimension data per member state

Name of data		Austria	Belgium		Bulgaria	Croatia	Czech Republic	Denmark	Estonia	France	Germany	Greece	Ireland	Luxembourg	Netherlands	Poland	Romania	Slovenia	Spain	Sweden
			FR	NL																
Scholarship during studies	Available/derivable	N	Y	Y	Y	Y	U	N	Y	Y	N	N	N	Y	Y	Y	D	Y	Y	N
	Used/Usable	-	Y	Y	Y	U	-	-	Y	N	-	-	-	N	Y	Y	D	Y	Y	-
Employment status of father and mother	Available/derivable	Y	U	Y	Y	Y	N	Y	U	Y	N	N	N	N	Y	N	D	D	Y	Y
	Used/Usable	Y	-	Y	U	U	-	Y	-	U	-	-	-	-	Y	-	D	D	Y	Y
Labour market status of father and mother	Available/derivable	Y	U	Y	U	Y	N	Y	U	Y	N	N	N	N	Y	N	D	D	Y	Y
	Used/Usable	Y	-	Y	-		-	Y	-	U	-	-	-	-	Y	-	D	D	Y	Y
Highest formal education of father and mother	Available/derivable	Y	N	Y	U	N	U	Y	Y	N	N	N	N	N	N	N	N	D	Y	Y
	Used/Usable	Y	-	Y	-	-	-	Y	Y	-	-	-	-	-	-	-	-	D	Y	Y
Graduation marks	Available/derivable	Y	N	N	Y	Y	N	Y	N	Y	Y	Y	D	Y	N	N	Y	N	N	Y
	Used/Usable	Y	-	-	Y	Y	-	Y	-	N	N	Y	D	Y	-	-	Y	-	-	Y

In this part of the survey, some respondents clearly mentioned that some data are managed by different administrations, suggesting that pre-agreement will be needed to get access to the information.

ANNEX C: Example of statistical indicators addressing policy questions

In order to identify the list of statistical indicators addressing the list of policy questions consolidated within the Task force 1 and Task force 2, the following approach was developed:

- All policy questions were taken into consideration although some characteristics (such as quality of learning experience, employee satisfaction, employment experience) can hardly be addressed via administrative data.
- Policy questions were linked to the previously identified variables included in the list of desired administrative data for assessment of current states of the systems and potential graduate tracking.
- Suggested indicators were discussed with Task force 1 and 2 in order to define an ideal set of indicators to track graduates in the long run
- The possibility of developing more complex indicators later in the process was left open.

Overview of suggested statistical indicators addressing policy questions relevant for tracking graduates through administrative data currently collected by member states:

Task force 1: Policy question	Suggested statistical indicators addressing policy questions	Variable (NR. and Name) identified within in Annex A	Comment
Limited list of policy questions			
1. Employment status of graduates at two time points – 1 year and 5 years after graduation.*	Indic 1. A: (What is) the proportion of employed graduates by status in Employment (classified by ICSE classification) at the reference time point after graduation. Indic 1.B: Percentage of unemployed graduates at the reference time point after graduation.	34 – Main activity status 37 – Employment status (Type of employment) 43 – Unemployment after graduation 44 – Unemployment at the reference period	Status in employment=employment status NOTE: distribution of employed graduates by status in employment NOTE: By International Classification of Status in Employment (ICSE-93 - (former statistical standard but still widely used) Employees Employers Own-account workers Members of producers' cooperatives Contributing family workers Workers not classifiable by status NOTE*: "Status in employment might to some extent also be relevant for administrative sources. Administrative sources based on for example tax systems, employment services, pension schemes or social security are used in some countries to measure employment. The possibility to create the categories of ICSE-18 would very much*

			depend on the possibilities that lie within the specific administrative source in the specific country." Source: Data collection guidelines for ICSE-18, International Labour Office, Geneva, 6 December 2018, p. 4. NOTE: Unemployment as one of the categories of the labour market.
2. What are graduates' working conditions (for instance, in terms of full time-part time status, contract type)? *	Indic. 2A. Full time/part-time status (time-involvement, employment): Indic 2 A. 2.a: Percentage of graduates employed in part-time work arrangements at the reference point after graduation Indic 2 A. 2.b: Percentage of graduates employed in full-time work arrangements at the reference point after graduation	35 – Full- or part-time main job	Graduates' working conditions = quality of employment – security of employment. NOTE to Indic 2 A. 2.a: No information provided by administrative data on reasons behind part-time work (because graduate could not find full-time employment for example)
	2 B. Contract status: fixed term contract/permanent contract: Ind 2 B. 2.a Percentage of graduates with fixed-term contract at the reference time point after graduation (formula example: nr. of graduates with fixed-term contract at the reference point/total number of all graduates). Ind 2 B. 2.b Percentage of graduates with permanent contract at the reference time point (formula example: nr. of graduates with permanent contract at the reference point/total number of all graduates).	36 – Type of contract	
3. What is the geographical destination of employment? (In the region of the education institution, in the country or internationally (in the EU or outside)*	Indic: 3 a: Percentage of graduates employed in the country (MS) different from the country (MS) of educational institution of observed graduation at the reference time point; Indic: 3. b: Percentage of graduates employed in the region (classified by NUTS) different from the region of educational institution of observed graduation at the reference time point.	40 – Region of local unit for main job	NOTE: MS = Member State
4. Are graduates employed in fields of study that they studied for?(Horizontal match)*	Indic: 4. a Percentage of graduates employed in occupation (classified by ISCO-08) corresponding their study field classified by ISCED-F-13 at the	39 – Occupation in main job	NOTE: Mapping of the ISCO-08 to ISCED-F13 needed; NOTE: Unemployment of graduates of certain study fields at the reference time

	reference time point after graduation. Indic 4.b: (What is) the proportion of unemployed graduates by study fields classified by ISCED-F-13 at the reference time point after graduation. Indic: 4.c: (What is) the proportion of employed graduates by study fields classified by ISCED-F-13 at the reference time point after graduation.		point could reflects horizontal mismatch - not corresponding labour market needs. NOTE: variable 38 – "Economic activity of the local unit for main job" (classified by NACE Rev. 2) might be used conditionally. NOTE: EUROSTAT Skills mismatch experimental indicators https://ec.europa.eu/eurostat/web/experimental-statistics/skills
5. Are graduates employed at the qualification level that they obtained? (Vertical match)*	Indic 5: Percentage of graduates employed at the corresponding skill level of ISCO-08 at the reference time point after graduation.	39 – Occupation in main job	- Classified by ISCO-08 major groups of skill levels (1-4); - ISCO-08 skill level 3 for short-cycle HE; - ISCO-08 level 4 for HE (BA, MA, PhD – study at HEI for a period of 3-6 years); NOTE: Mapping of the ISCO-08 skill levels to ISCED 2011 levels of education.
Wide list of policy questions (also includes limited list)			
6. if graduated do not have a horizontal match in their work, why is that?	/	/	n/a within administrative data; NOTE: possible analysis of different (socio-) economic factors at the reference point after graduation; mapping study programmes classified by ISCED-F-13 with horizontal mismatch analysis results
7. if graduates do not have a vertical match in their work, why is that?	/	/	n/a within administrative data; NOTE: Possible analysis of different (socio-) economic factors at the reference point after graduation; mapping study programmes with vertical mismatch analysis results
8. Skills match/ Quality of learning **Is there a match between the skills acquired by graduates during higher education and the skills they are using in their current employment?**	/	/	n/a within administrative data; the list of skills used in graduates current employment only available via survey; possible solution would be ECSO classification

9. Study mobility/ graduate mobility **What are the characteristics and mobility patterns of degree mobile graduates after graduation?** **AND/ OR** **To what extent does learning mobility lead to labour mobility and is there a match in terms of destinations?**	Indic 8.a: Percentage of labour mobile graduates with degree mobility experience during studies at the reference time point after graduation. Indic: 8.b: Percentage of labour mobile graduates with learning mobility experience during their studies at the reference time point after graduation. Indic: 8.c: Distribution of labour mobile graduates with degree mobility experience by MSs Indic: 8. d: Distribution of labour mobile graduates with learning mobility experience by MSs	Category: Data on international mobility of graduate during study: 30 – Participation in mobility 31 – Destination country of mobility 32 – Total duration of Mobility 33 – Type of Mobility	NOTE: Labour mobile graduates employed in the region (classified by NUTS) or country different from the region/country of educational institution of observed graduation at the reference time point. NOTE: Labour mobility=graduate mobility; NOTE: Learning mobility=study mobility=credit mobility; NOTE: Degree mobility=degree seekers; NOTE: Destination matching defined by: Different MS; Different NUTS region; Outside/inside EU.
10. Social mobility and integration **Occupations of parents** **How successful is higher education at fostering vertical social mobility?** **AND/ OR** **How successful are under-represented groups in higher education after graduation in comparison with other groups? This can apply to gender, religion, ethnicity, nationality, age, disability, sexual orientation, family status, socio-economic background.***	10. a: (What is) the proportion of graduates by highest formal education of father at the beginning of their studies. 10. b: (What is) the proportion of graduates by highest formal education of mother at the beginning of their studies. 10.c: (What is) the proportion of graduates by employment status of father 10. d: (What is) the proportion of graduates by employment status of mother	47 – Employment status of father and mother 48 – Labour status of father and mother 49 – Highest formal education of father and mother	NOTE: Social dimension category (Variable 49): The highest formal education of father/mother at the beginning of their studies (entrance academic year/school year): - Mandatory school - Elementary vocational training - Middle School - Advanced vocational training - High School - Academy - University / University of Applied Sciences NOTE: For employment status, see comment above (Policy question 1). NOTE: Time point of employment status of father/mother could be defined at several reference points: at the beginning of graduate s studies; at the graduation point; at the reference time point.
Additional list/ widest list of policy question (includes limited and wide list)			
11. Appropriateness/ quality of the learning experience: **see the specific point in the Council**	/	/	NOTE: Complex indicator “Relevance of education and training to employment or life-long learning” could be built taking into consideration

Recommendation: *relevance of education and training to employment or life-long learning*			several aspects/characteristics of study programmes; n/a within administrative data only
12. Career progression: see the specific point in the Council Recommendation	12. a: Average income of graduate at the reference time point 1 year after graduation compared to average income at the reference time point 5 years after graduation.	45 – Earnings at the reference period	Council Recommendation: point 2. Content of data to be collected: e) Career progression according to: - income; - corresponding skills level by ISCED 2011
13. Employment duration and experience	Indic 13. a: Average duration of first employment after graduation in days/months at the reference time point after graduation. Indic. 13 b: Average duration of current employment in days/months checked at the reference time point after graduation.		NOTE: Employment duration: - Duration of first employment; - Duration of current employment (at the reference point). NOTE: Employment experience – n/a within administrative data
14. Search duration/ Length of time incurred between graduation and first job	14. Average time in days/weeks between graduation date and first employment date.		Can be derived from employment status (if available for each day of the year)
15. Work-based learning	15.a: (What is) the proportion of employed graduates by status in Employment (classified by ICSE classification) at the reference time point after graduation with compulsory practical experience during studies	26 – Compulsory practical experience during study	NOTE: Policy question not clearly defined; policy question relevant for HE as short cycle HE study programmes and VET programmes usually have compulsory practical experience in their curricula
16. Employee satisfaction	/	/	n/a within administrative data; however the employee satisfaction could be partly answered within “career progression” policy question and “graduates' working conditions for example

Task force 2: Policy question**	**Suggested statistical indicators addressing policy questions**	**Variable (NR. and Name) identified within the List of administrative data provided by Task force 3**	**Comment**
1.What are the patterns, volumes, causes and effects of brain drain/brain gain?	Indic. 1.1: Percentage of graduates who s current location of residence is different from location of residence at the graduation.	5 – Current location of residence 6 – Location of residence at the graduation	NOTE: Patterns of brain drain/brain drain could be answered via administrative data; for causes and effects deeper analysis with data from other sources would be

	Indic 1. 2: Percentage of graduates employed in the country (MS) different from the country (MS) of educational institution of observed graduation at the reference time point. Indic 1. 3: Percentage of graduates employed in the region (classified by NUTS) different from the region of educational institution of observed graduation at the reference time point.	7 - Location of residence before enrolling 8 – Citizenship 9 – Country of birth 10 – Country of secondary education 11 – Country of previous completed education 40 – Region of local unit for main job	needed (economic factors in each county or region, local/regional or wider economic crisis etc.), including surveys. NOTE: Indicators suggested for Task force 1 policy question nr. 3: "What is geographical destination of employment?" might be used for brain drain/brain gain as well (see. Indic 1.2 and 1.3) MS = Member State NOTE: Current location of residence=location at the reference time point; NOTE: with administrative data graduate mobility patterns (for example most common destination county of graduate mobility by MSs/by NUTS regions/by study field etc. could be possible (if "cross boarder ID" and legal basis provided)
2.What are the characteristics and mobility patterns of degree mobile graduates after graduation?	Indic. 2.1: Percentage of all graduates who s location of residence at the graduation is different from their citizenship (or county of birth or location of residence before enrolling to observed HE/VET graduation etc.). Indic 2.2: Percentage of degree mobile students who s current location is different from location of residence at the graduation;		NOTE: Task force 3 administrative data category "Data on international mobility of graduate during study" refers to "credit mobility" not "degree mobility"; NOTE: Current location of residence=location at the reference time point; NOTE: Current location of residence (Location of residence at the graduation) could be aggregated on: - MS s level; - NUTS level; - Inside/outside EU level. NOTE: Labour mobility=graduate mobility; NOTE: Learning mobility=study mobility=credit mobility; NOTE: Degree mobility=degree seekers;

** Possible disaggregation: by sex, by age, by nationality, by country of observed graduation, by level of education, by type of HE/VET of observed graduation, by study field, STEM vs. not STEM study programmes of observed graduation.*
***NOTE: Even if national ID exists, it cannot be used (yet) to track migrant graduates between MSs and wider (outside EU).*
NOTE: Limitations of administrative data were taken into consideration as they are collected for administrative purposes by public bodies and used for official purposes: administrative activities etc. Moreover, they were/are collected for specific purposes and need to be transformed in proper way to be useful for addressing graduate tracking issues.

Annex 3 : Expert group on graduate tracking –
Task force 3: Final conclusions on using administrative data to track graduates at European level

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