# Peer Learning Activity on 'Combining and linking administrative data and surveys for graduate tracking'

## Summary report

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# 1. Introduction

This Peer Learning Activity (PLA) took place on 18-19 October 2022 and was organised as part of the activities of the European Network of Graduate Tracking (funded by the European Commission). It was hosted by the Czech Ministry of Education, Youth and Sports in Prague, Czech Republic in the context of the Czech Presidency of the Council of the European Union. The PLA brought together 30 participants representing 16 countries (Austria, Croatia, Czech Republic, Denmark, Estonia, Finland, Hungary, Ireland, Italy, Latvia, Norway, Poland, Portugal, Romania, Slovakia and Spain), European-level stakeholders and social partners (European Student Network and European Training Foundation), the European Commission and the Support Service.

It provided an opportunity for members of the European Network of Graduate Tracking to exchange information, experiences and good practices in relation to the combining and linking of administrative data and surveys for graduate tracking. Participants were also able to gather information on good and promising practices from participating countries and identify success factors and transferable lessons that can improve the combining and linking of administrative data and surveys for graduate tracking. Guiding questions for the discussion at the PLA included:

- How do the roles and responsibilities of HEIs and government departments/agencies differ in different graduate tracking systems?

- What are the perceived/actual benefits of combining administrative and survey data?

- What are the main limitations and challenges of combining and linking administrative and survey data at the national level, including legislation and data protection?

- What are the main success factors of combining and linking administrative data and surveys for graduate tracking?

- To what extent are mobile graduates covered in the national graduate tracking system and how can this be improved through better data sharing between countries? What are the current obstacles/challenges (e.g. comparability of data) and how can they be overcome?

- How can Erasmus+ mobility data (as gathered by HEIs and/or collected in Erasmus+ participant surveys) be integrated in the European Graduate Tracking Initiative, e.g. in the context of the European Student Card Initiative and/or European Higher Education Sector Observatory)?

# 2. Background to the PLA

The 2017 Council Recommendation on tracking graduates[1] states that Member States should collect longitudinal graduate data on:

- 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; and
- career progression.

Collecting this information ideally requires a mix of administrative and survey data. Administrative data can be used to provide evidence of graduate background, education and training and employment and further learning outcomes through whole-population data sources. However, capturing information on the relevance of education and training to employment and contextual information on how they support their career progression can only be captured qualitatively (e.g. through surveys).

To support graduate tracking, the European Commission set up an expert group (2018-2020) to *'facilitate implementation of the Council Recommendation by monitoring progress in the development of graduate tracking systems in the Member States, exploring options for collecting national data that is mutually compatible and comparable at EU level, discussing effective ways of tracking graduates, including considering the optimal frequency of longitudinal surveys and following the work on the pilot European Graduate Survey, and communicating about the lessons learned in the home country'[2].*

This expert group, which consisted of 66 policy experts, including policymakers, data analysts, researchers and representatives of stakeholder organisations, set out a series of recommendations for *'the further development and support of the graduate tracking strategy and tool development at European and national/system levels'[3].* One of the recommendations of the European Commission Expert Group on graduate tracking was that *'Member States and other EEA countries, with the support of the European Union, improve the collection and linking of administrative data, particularly in relation to education, labour market participation and earnings'[4].*

The expert group also recommended to establish a two-step approach to graduate tracking:

- The first step consists in the establishment of a European graduate survey (or surveys), as this was considered the most feasible option, under the current conditions to generate comparable graduate tracking data, especially for countries that have no graduate tracking systems in place.

- As a second step, the expert group recommended to improve the collection and linking of administrative data, particularly in relation to education, labour market participation and earnings[5].

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[1] European Commission (2017). Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017H1209(01)&from=EN

[2] European Commission, Directorate-General for Education, Youth, Sport and Culture, Recommendations of the Expert group, October 2018-October 2020, Towards a European graduate tracking mechanism, https://op.europa.eu/en/publication-detail/-/publication/c5669b4b-6adb-11eb-aeb5-01aa75ed71a1

[3] Idem

[4] Idem

[5] Idem

According to the expert group recommendations, much can be learned from those countries that have this kind of linking in place. Administrative datasets, such as regional and national social security, tax, education datasets, are used in several countries for graduate tracking and can act as a useful complement to graduate surveys by reducing the amount of information required from these[6].

Combining administrative datasets and survey data is a complex process with many potential challenges, including in relation to data protection, permissions to use the data and the lack of unique identifiers for matching data. However, common identifiers (social security number, a personal ID number, or a unique learner number) are increasingly used to link administrative datasets and exchange information within countries.

The 2020 study 'Mapping the state of graduate tracking policies and practices in the EU Member States and EEA countries'[7] identified 123 graduate tracking measures at system level across 29 countries in Europe. This is split relatively evenly between surveys and administrative data collection approaches. However, from the 123 measures identified, only around a quarter (37) combine administrative data collection and surveys in graduate tracking measures.

Many countries use both survey and administrative data collection for tracking graduates. According to the 2020 mapping study, a combination of the two approaches is used in 18 countries (Austria, Belgium-Wallonia, Bulgaria, Germany, Denmark, Spain, Finland, Hungary, Ireland, Italy, Lithuania, Latvia, the Netherlands, Norway, Poland, Portugal, Sweden and the United Kingdom). The combination of administrative data collection and surveys is more common in higher education (21 measures) followed by initial vocational education and training (17) and less present in continuing vocational education and training (8).

Based on the 2020 mapping study, 14 countries do not combine administrative datasets and surveys for various reasons: 5 countries do not use administrative data in their graduate tracking measures (Croatia, France, Liechtenstein, Malta and Romania), 2 countries do not use surveys in their graduate tracking measures (Belgium-Flanders and Luxembourg), 4 countries use administrative data and surveys in separate graduate tracking measures (Czech Republic, Estonia, Slovakia and Slovenia) and 3 countries do not have any graduate tracking measures or their methodology is unknown (Cyprus, Greece and Iceland).

Notably, several countries have further developed their graduate tracking systems since the 2020 mapping study. These have mostly been in the development of administrative data collection. For example, Hungary and France have recently developed a new linked administrative dataset for graduate tracking of VET graduates. Croatia has also undertaken further graduate tracking data collection. Investing sufficient efforts and resources in a regular and robust mapping / updating of the graduate tracking systems in the participating countries may improve the evidence basis for policy-making.

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[6] Idem

[7] European Commission, Directorate-General for Education, Youth, Sport and Culture, Mapping the state of graduate tracking policies and practices in the EU Member States and EEA countries, 2020. https://op.europa.eu/en/publication-detail/-/publication/93231582-a66c-11ea-bb7a-01aa75ed71a1/language-en/format-PDF/source-search

As the study was published more than two years ago, it may not reflect the latest development in EU Member States and EEA countries.

# 3. Country practices

Four countries were selected to present their graduate tracking systems and how they combine and link administrative data and surveys. This provided a useful overview of the organisation of national graduate tracking systems and highlighted the variations that exists across Europe. Below we present a brief summary of each of the graduate tracking systems presented at the PLA.

## 3.1. The Czech graduate tracking system

The Czech Republic has over 20 years of experience in graduate surveys, with the first national survey being launched in 1999. It also participated in the first Eurograduate pilot survey in 2018.

The Czech Republic has four main national goals for graduate tracking:

- provide relevant information on the quality of education and learning outcomes, which is essential for the choice of educational pathways.

- provide feedback and information to HEIs for the preparation and update curricula to improve the quality and relevance of education.

- contribute to policy development at local, regional, national and European level.

- strengthen cooperation with research organisations and increase their competitiveness internationally.

The Eurograduate 2022 survey is also a priority for the Czech Republic and 46 HEIs representing 90% of graduates are participating. There is a plan to coordinate the national survey and the Eurograduate survey.

Going forward, the Czech Republic would like to make progress in three areas in particular: the use of administrative data, the development of longitudinal surveys of graduates and data linkage.

With regards to the use of administrative data, the Czech Republic currently have one linked administrative dataset, which is tracking VET and HE graduates' unemployment through administrative data (Sledovani nezamestanosti absolventu skol a vysokych skol)[8]. The data presents the unemployment rate by type of HE programme (bachelors, masters, doctorate); subject area; and period after graduation (less than 6 months after graduation, between 6 and 12 months after graduation, and between 1 and 2 years after graduation). They would like to make better use of administrative data in the future and this currently being discussed by relevant ministries and the Czech Statistical Office.

Plans for longitudinal national surveys are also being discussed nationally and at the HEI level. However, there is currently no specific plan beyond Eurograduate 2022. During Eurograduate 2022, the Center of Higher Education Studies (CHES) will re-survey the graduates who gave consent during the Czech national survey Graduate 2018 (more than 9,000 graduates of the years 2013-2017). Furthermore, during the Eurograduate 2022 survey, an experiment will be carried out to measure competencies with the use of anchors (with part of the graduates of the

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[8] Information system on the employment of school graduates on the labour market, available at: https://www.infoabsolvent.cz/Temata/ClankyAbsolventi; Database on employment / unemployment of university graduates, available at: http://zamestnani.csvsdata.cz/index.html

cohorts 2017-2018, 2018-2019 and 2019-2020) for 5 out of the 12 Eurograduate questions. The objective is to help researchers to compare and validate competencies.

In terms of data linkage, there are some challenges associated with the lack of experience in using administrative data and legislative issues regarding using administrative data for surveys. The use of administrative data is a complex problem, requiring changes in legislation not only in the Ministry of Education, but also in other ministries (including the Ministry of the Interior and the Ministry of Labour and Social Affairs). These offices are currently not able to transfer administrative data, nor is it possible to link them into one system. The Czech Republic is currently working on informing and communicating with stakeholders at different levels and sectors, strengthening cooperation and supporting networking and experience sharing, including a community of HEIs' graduate tracking professionals.

## 3.2. The Finnish graduate tracking system

In Finland, the main responsibility for graduate tracking is shared between the government and HEIs. Graduate tracking based on administrative data covering all graduates (VET and HEIs, including doctoral graduates) is available in Vipunen[9]. Vipunen is the education administration's reporting portal and provides access to statistics and indicators for:

- education in a number of educational sectors;
- placement of students after completion;
- research conducted in higher education institutions; and
- the population's educational structure and the socio-economic background of students.

The Ministry of Education and Culture and the Finnish National Agency for Education are jointly responsible for its content. Vipunen's statistics are based on data and registers collected by Statistics Finland, the Ministry of Culture and Education and the Finnish National Agency for Education. Statistics Finland collects student data and data on qualifications and degrees attained during a calendar year. Such data is submitted by education providers, educational institutions and higher education institutions. Data is also gathered from municipalities on the cost and operation of municipal comprehensive school education (basic education). This data is required for the allocation of the central government funding to local government.

Based on the data it collects, Statistics Finland maintains a register for qualifications and degrees, which is combined with population information provided by the Population Register Centre and data from the employment register, also maintained by Statistics Finland. The population relates to permanent residents in Finland on the last day of a given year. The data is mainly derived from administrative registers and statistical data files.

Statistics Finland also collects data on teachers in comprehensive schools (basic education), upper secondary education and liberal (non-formal) adult education. The Finnish National Agency for Education collects cost and operational data from education providers. This data provides the basis for central government funding to local government for comprehensive school education (basic education), upper secondary education and polytechnic education. Data on the cost and operation of municipal comprehensive school education (basic education) is collected by Statistics Finland. The National Agency for Education maintains the joint application system and selection registers for upper secondary education and higher education. Data from these registers is also available for statistical use in Vipunen database. The Ministry of Education and Culture gathers data on operations and employees and financial data in universities of applied sciences and universities.

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[9] Vipunen – Education Statistics Finland, available at: https://vipunen.fi/en-gb

Universities - through the Aarresaari network of university career services – are responsible for the development and management of graduate tracking surveys[10]. As a network, they provide services to university students and recent graduates as well as universities, employers and other stakeholders. The network has been operating for over 20 years. Their goal is to promote the career skills development and employment of university students and recent graduates and develop universities' internship practices and contacts with employers. They also produce systematic data on the employment of university graduates and the know-how produced by university education. The data is collected nationwide and aggregated by Research Stats Service TUPA of the University of Tampere and CSC – the IT Centre for Science, in collaboration with Aarresaari. The universities of applied sciences (UAS) have recently developed and implemented almost similar approach[11]. The system for UAS has been running since spring 2019 when the first survey was implemented in collaboration with CSC) . Universities of applied sciences joint network is responsible for the development and management of graduate tracking surveys. Survey data for both universities and UAS are collected using CSC's survey-based information gathering system ARVO .

Surveys[12] are sent to all graduates by SMS or email, based on contact details from HEIs' registers and address details retrieved from the Digital and Population Data Services Agency, 3 or 5 years after graduation depending on their curricula. The survey is pre-filled with basic information about the background of the respondent and focus on qualitative questions such as work experience, satisfaction with the degree, overall career and work situation, education after graduation and competence and work. Response rates vary between institutions but are typically around 40% for both UAS and universities, allowing for a more detailed analysis than at HEI level.

Data is publicly available online[13] to everyone for peer comparison and used by institutions to plan and develop education, for research[14] as well as to provide information to applicants[15]. HEIs are strongly committed to the process as career monitoring survey data is an important tool for HEIs' to develop education thanks to the relevance of the data. Graduate tracking data is also used by the Ministry of Education and Culture to determine part of the funding for HEIs (4% of funding for universities and 6% of funding for UAS is based on the number of employed graduates and the quality of employment). Currently, the level of satisfaction toward the career and degree of respondent is very high with an average of 87% according to the survey-based career monitoring.

## 3.3. The Hungarian graduate tracking system

In the Hungarian Graduate Career Tracking System (GCTS), it is mandatory for HEIs to survey their students and graduates. The surveys are implemented directly by HEIs but the data is collated and stored centrally in a national database.

The Hungarian graduate tracking system was created in 2008. The system was initially established and managed by Education Public Services Non-profit LLC in cooperation with other institutions. They set up the graduate tracking system in Hungary, provided

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[10] Aarresaari, available at: https://www.aarresaari.net/graduates-in-working-life/?lang=en

[11] UAS Career Monitoring, available at: https://amk-uraseuranta.turkuamk.fi/en/front-page/

[12] Content of career tracking surveys, available at: https://wiki.eduuni.fi/pages/viewpage.action?pageId=54691210

[13] Vipunen – Education Statistics Finland, UAS, available at : https://vipunen.fi/en-gb/polytechnic/Pages/Uraseuranta.aspx and universities, available at: https://vipunen.fi/en-gb/university/Pages/Uraseuranta.aspx

[14] University of Jyväskylä, Degree behind us: the results of the universities' candidate feedback survey and the master's and doctoral career monitoring surveys 2018, 2019 and 2020, available at: https://jyx.jyu.fi/handle/123456789/78209

[15] University graduates in working life, available at: https://toissa.fi/home-en-us/

methodological support and carried out research and publication of the results. Currently, the GTCS is managed by the Hungarian Educational Authority.

The model of the Hungarian GCTS has two levels:

- the institutions collect data and ensure data supply which provides the basis of different analyses at the institutional level; and

- a central institution collects and processes the information at the national level. Statistics are created from this data collection and is subsequently analysed and disseminated.

Data from the Educational Authority (Higher Education Information System), Tax Authority (income, work, entrepreneurship, parental status, cash benefits), Health Insurance Fund (mobility abroad, business trips) and the Ministry for Innovation and Technology (job search, public work programmes) is combined and linked in the Integration of Administrative Databases (IAD)[16]. The integrated data is made publicly available online[17] and is used for strategy development/follow-up, to provide feedback on labour market outcomes to institutions, update study programmes, policy support, research and to inform applications and students in higher education. The data integration allows in-depth analysis of graduates. For example, it shows that the income of graduates is 29% higher, 1.5 years after graduation, compared to the average income.

In addition to the IAD, since 2010 two surveys are conducted in Hungary every year - a graduate survey and a student survey. The survey is run by institutions using a standardised questionnaire and methodology that is developed by the Educational Authority. Until 2019 the graduate survey was completed 1, 3 and 5 years after graduation. The GCTS has since been renewed and graduates are now asked to complete the questionnaires 1 and 5 years after graduation. The exact topic, due date, frequency, method and the methodology of the data supply as well as the questionnaire is announced on the website of the Educational Authority. Universities must also make the results available on their website in the form of a study.

Administrative data and surveys have been combined and linked on two occasions for research purposes, namely in relation to: i) dual HEI studies; and ii) national assessment of basic competencies. In both cases, the combining and linking of administrative data and survey data were done under strict conditions and was only allowed for research purposes. The identifiers were hashed by an external organisation to ensure individual identifiers could not be tracked back. For the survey on dual studies, the linking of data sources allowed certain questions to be removed from the questionnaire, thereby shortening the length of the survey. Students had to provide consent for the administrative data to be used and several mismatches occurred thus the data could only be partly used. For the survey on the national assessment of basic competencies, the goal was to link the skills and family backgrounds of students who entered higher education and dropped out to identify risk groups. A research paper was published based on the analysis of the data linking.

The community around graduate tracking is active with a national network and the organisation of meetings and workshops for HEIs. One of the biggest challenges of the Hungarian GCTS is the stagnant response rate. One of the reasons for this is that many of the potential respondents cannot be reached through the contact details held, and thus cannot be informed about the survey. The other reason is the relatively low willingness to respond. Graduates do not feel incentivised to complete a long questionnaire.

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[16] Integration of Administrative Databases (IAD), available at: https://www.diplomantul.hu/integration-administrative-databases

[17] Hungarian Graduate Career Tracking System (GCTS), available at: https://www.diplomantul.hu/

## 3.4. The Italian graduate tracking system

In Italy, graduate tracking is carried out by the AlmaLaurea Interuniversity Consortium. The Consortium has existed since 1994 and has been carrying out an annual census survey on the employment conditions of graduates at the national level since 1998. The survey links survey data with administrative data gathered from universities and covers the cohorts 1, 3 and 5 years after graduation. It provides a broad portrait of graduates' job placement in the labour market, the characteristics of their employment, including occupation, employment contract and salary, and how the aquired skills are used in their employment. In addition, an annual survey on the employment conditions of university doctorate holders' (PhD) has been carried out since 2015. Since 2005 AlmaDiploma also carries out a survey on the employment conditions and study profile of high school graduates, covering the cohorts 1, 3 and 5 years after graduation.

The Consortium currently includes 80 of the 98 Italian universities, representing around 90% of all graduates of Italian universities.

The Consortium is supported by the Ministry for University and Research and its member universities. AlmaLaurea historically collaborates with institutions and organisation to produce in-depth analysis and studies and annually provides documentation to the Italian Ministry of University and Research (MUR), the Italian National Agency for the Evaluation of the Universities and Research Institutes (Anvur) and its member universities. AlmaLaurea is recognised as a research body and since 2015 its Statistics Office has been a member of SISTAN, the National Statistical System.

AlmaLaurea annually carries out two census surveys at national level on the study profile[18] and employment conditions[19] of graduates at 1, 3 and 5 years from graduation. This integrated system combines two information sources:

- The single member university's administrative database that contains information about the degree earner's personal profile, upper secondary education, their degree programme and their academic performance within that programme. A standardised procedure is established with each university for collecting, organising, cleaning, storing this information to ensure low levels of missing data, quality of data and comparability across institutions in compliance with GDPR.

- The set of questionnaires that are administered to each degree-earner, respectively, upon completing the degree programme (graduates study profile survey) and then at 1, 3 and 5 years after graduation (graduates' employment conditions survey).

AlmaLaurea annually run the surveys on behalf of the universities within the consortium while delivering benchmarked standardised reports to each member institution. The latest survey on the employment conditions of graduates, carried out in 2021, involved 660,000 graduates from 76 Italian universities (graduation years - 2020, 2018 and 2016)[20]. The data from the AlmaLaurea surveys are publicly available in an aggregated form and can be accessed on the AlmaLaurea website. This means that anyone interested in this topic (i.e. students, graduands, graduates, universities, researchers, employers) can access the results of the surveys.

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[18] AlmaLaurea surveys, Graduates' Study Profile, available at: https://www.almalaurea.it/en/our-data/almalaurea-surveys/graduates-profile

[19] AlmaLaurea surveys, Graduates' Employment Conditions, available at: https://www.almalaurea.it/en/our-data/almalaurea-surveys/graduates-employment-status

[20] 24th Survey – Report 2022

Administrative data on graduates held by HEIs are linked with graduate profile and employment survey data to create an integrated database. CVs are also generated for graduates and made available on an online database that can be searched and accessed by employers.

The main advantages of combining administrative and survey data include:

- The reduction of length, complexity and costs of the survey;

- The better representativeness of the survey;

- The increased efficiency; and

- The improved data quality.

The graduates' study profile survey is completed through an online questionnaire and had a response rate of more than 90% in 2021. For the graduates' employment condition surveys, graduates first receive an email link to an online survey (CAWI) and non-respondents are then contacted by telephone (CATI). According to the survey carried out in 2021, the response rate was 74.2% at T+1 from graduation and over 65.8% at T+3 and 67.7% at T+5 years from graduation. The high response rates can be attributed to the data integration effect, as well as graduates' retention due to the employment services provided by AlmaLaurea which graduates use after the completion of their studies. For graduate tracking, AlmaLaurea rely on updated personal contact information (e-mail, telephone numbers), provided directly by the graduates when they update their CVs, in accordance with the GDPR regulation. The use of mixed techniques - online and telephone interviews – and having the surveys centrally implemented by AlmaLaurea on behalf of its member universities is effective in improving the cost-effectiveness of the tracking measure.

Data is used by universities to monitor their performance and review their degree courses, by the Ministry of University and Research to monitor the university system and the National Evaluation Agency of the University System and Research to monitor quality assurance and accreditation. The data is also made available to students and their families, and to graduates for orientation purposes, and to researchers for in-depth studies.

# 4. Discussion

## 4.1. Roles and responsibilities of HEIs and government departments/agencies in national graduate tracking systems

Across the participating countries there is a mix of approaches to graduate tracking data collection with some collecting the information centrally, while in others the responsibilities for data collection lie primarily with HEIs. There are also differences in the use of administrative data and surveys for graduate tracking. For example:

- In Latvia, graduate tracking is solely done through administrative data as HEIs do not have the legal mandate to track graduates. The Ministry combines their data on students with labour office data on wages.

- In Romania, HEIs are required to provide data on the employability of their graduates, but the collection is not systematic and often of variable quality. Initiatives for a centralised tracking system are under way, with a national questionnaire being developed as part of the Eurograduate survey.

- In Portugal, the system is decentralised as no legislation allows for centralised graduate tracking. HEI track graduates, whilst the Ministry is responsible for hosting the data.

- In Hungary, the Educational Authority is responsible for the graduate tracking data. They ask HEIs to send surveys to their students and then collect and analyse the data centrally.

- In Finland, the main responsibility for graduate tracking is shared between the government and higher education institutions. The Ministry of Education and Culture and the Finnish National Agency for Education are jointly responsible for the administrative data, whilst universities - through the Aarresaari network of university career services – are responsible for the development and management of the graduate tracking survey.

- In Slovakia, the Ministry of Education is responsible for linking administrative data for graduate tracking and a separate agency is in charge of gathering survey data. A shift in responsibility towards HEIs is in progress.

- In Ireland, the graduate tracking system is using both survey and administrative data and it is coordinated by the Higher Education Authority.

- In Denmark, the graduate survey is the responsibility of the Danish Agency for Higher Education and Science.

- In Italy, the AlmaLaurea Consortium carries our graduate tracking on behalf of its member universities, by linking the administrative data provided by universities and survey data collected by AlmaLaurea.

- In Poland, the Ministry of Science and Education is responsible for linking administrative data for graduate tracking. Surveys, if conducted, are done by HEIs.

Regardless of the system, it is acknowledged that both HEIs and ministries/agencies play a key role. Government involvement can ensure data is collected consistently, while HEIs are key actors in building on their personal relationships with students to elicit a good response rate to surveys.

Several countries (including Romania, Austria, Hungary, Spain and Estonia) are working toward aligning their current graduate tracking surveys with the 2022 edition of the Eurograduate survey.

## 4.2. Perceived/actual benefits of combining and linking administrative and survey data

Combining and linking administrative and survey data has several potential benefits including:

- Allowing for a centralised approach with better coordination between stakeholders and inter-department work;

- Shortening the length of surveys, which may in turn reduce the cost of implementation and improve response rates;

- Improving the quality and accuracy of the data collected by validating, comparing and correcting data;

- Increasing the representativeness of graduate tracking data as the use of two data collections methods enables data to be collected from a wider range of graduates;

- Obtaining data on drop-out rates and tracking career paths/changes; and

- Obtaining quantitative and qualitative data and insights that would not be accessible with a single source of data.

- Monitoring in a more comprehensive way the mobility of students and graduates taking into account the fact that a European labour market is establishing itself.

Overall, it was concluded that surveys and administrative datasets are complementary tools, with surveys providing qualitative and subjective information about a sample of graduates and administrative data providing quantitative and factual information on the overwhelming majority of the graduate population.

## 4.3. Main limitations and challenges of combining and linking administrative and survey data at the national level

The biggest challenge in combining and linking surveys and administrative data relates to GDPR and data protection legislation. Specifically, existing national legislation and processes may not allow data collected for one purpose to be used for another purpose. Data protection legislation may also differ between countries which may prevent or complicate data sharing between countries. The permissions sought when the data is collected also vary which may prevent or limit data sharing between different national organisations and linking of databases from different ministries and services. In some countries, the legislation and/or the permissions sought may need to be amended to allow the linkage of administrative data and survey data, thus necessitating a discussion at the political level and improved coordination between stakeholders.

Combining and linking administrative data and survey data may also lead to distrust among graduates, resulting in lower response rates for graduate surveys. For example, respondents may be worried that combining administrative and survey data would allow their answers to be tracked back to them, especially if they graduated from a small HEI, and that this information will be used against them. Data security and pseudonymisation/anonymisation of data are therefore essential for better combining and linking different datasets.

Some countries also highlighted issues related to the comparability of different data sources and the compatibility of different information systems and registers at the national level. Different definitions for different variables exist across organisations, as they may be using the data for different purposes. Differences in the quality of the data may also provide obstacles in combining and linking the datasets.

Graduate tracking does not provide a complete picture of the situation of graduates. Mobile graduates and students with parallel study programmes are difficult to track. Obtaining and maintaining up-to-date contact details for graduates is an important challenge for graduate surveys.

If HEIs are not legally obliged to collect data and/or perform surveys, they may not be active actors in the system and/or collaborate with government departments/agencies.

## 4.4. Main success factors of combining and linking administrative data and surveys for graduate tracking

Well-functioning graduate tracking measures were felt to be characterised by:

- The involvement and cooperation of key bodies, including those in charge of the policies and those holding the data and the methodological expertise. This should be based on clear roles and responsibilities among the involved institutions, in order to avoid duplication of effort and to achieve synergies. This communication and collaboration could be facilitated by a coordinating or moderating individual or organisation.

- Explaining the purpose of tracking graduates, setting clear objectives, showing the benefits and what is behind the data help increase the interest and attractiveness of graduate tracking and to ensure data in registers are up to date.

- Utilising alumni networks can assist in maintaining up-to-date contact details and promoting graduate surveys, thus potentially increasing the response rates. It is therefore important to create and maintain an alumni culture.

- Having effective processes for ensuring data security. As such, having a central organisation responsible for the data can be an important enabler.

- Creating a culture of trust and purpose is important to ensure qualitative and high response rates. The data owners and processors need to be seen as trustworthy of not misusing the data.

- Building knowledge capacities on how to work with graduate tracking data to improve data storing, linking and processing and dissemination. Mismatching could be avoided by increasing the number of identification methods.

The designation of the National Reference Points and the participation in the Eurograduate 2022 pilot survey has also encouraged national stakeholders to appoint specific bodies to coordinate and implement the European Graduate Tracking Initiative, and to develop methodological, statistical and IT capacity.

## 4.5. Capturing mobile graduates in national graduate tracking system

Tracking mobile graduates is difficult in all countries. Under the current conditions, and provided that up-to-date contact details are obtained and maintained, surveys tend to be the only option for tracking graduates that have moved to another Member State or EEA country for work or personal reasons.

The European Commission is interested to improve the tracking of Erasmus graduates and the impact of mobility experiences. A concrete discussion on its scope and aims, as well as its fulfilment could be useful for moving such an initiative forward.

Based on estimates shared by the participating countries at the PLA, mobile graduates account for varying shares of graduate survey respondents (some estimates suggested 5-10%), although it is difficult to know whether this is representative of the mobile graduate group. This is a similar estimate to that found by Schomburg (2011). Looking at six countries, he found that the proportion of graduates working abroad after graduation at the time of the survey varied from less than 5% to less than 10% among Bachelor graduates[21].

Administrative data do not generally allow tracking of mobile graduates, although it may be used to determine whether they have moved abroad (e.g. if they have deregistered from public health insurance or informed the relevant authorities of their emigration). For example, in Hungary, the National Health Insurance Fund is used to check if a person is still residing in the country. Poland uses a similar mechanism. In Italy, the Register of Italians Residing Abroad (A.I.R.E.) has been established since 1988.

It was suggested that a greater share of mobile graduates (alongside other graduates) can be reached through collaboration with alumni clubs/networks, better use of social media and the use of prizes/incentives (or pre-issued cash incentives – in Austria, the survey is posted out together with a EUR 2 coin). In the Czech Republic, paid advertisements are promoted on LinkedIn and Amazon vouchers are gifted to selected respondents to help boost the survey response rate. In Spain, there is no prize as responding to the survey is a legal requirement.

Some participants suggested that a central European hub, for instance handled by Eurostat, could be used to match data from mobile graduates based on administrative data from different countries. Hashing the data could be used for ensuring data security. However, this would need to be supported by greater consistency and comparability of data including on the identifiers being used. There are also likely to be various legal barriers to sharing administrative data across boundaries.

It is rare that countries integrate Erasmus+ mobility data in graduate tracking systems but there are examples of this data being used for associated research, such as in Austria and Italy. Romania is also planning to include Erasmus+ mobility data in the future. Past research also shows that Erasmus+ students tend to have a higher propensity to move abroad for work and thus can act as a predictor for mobile graduates.

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[21] Schomburg, H., 2011. Employability and mobility of Bachelor graduates: the findings of graduate surveys in ten European countries on the assessment of the Bologna reform. In: Employability and mobility of Bachelor graduates in Europe. Key results of the Bologna process. Schomburg, H. and Teichler, U. ed. Rotterdam: Sense Publishers.

# 5. Lessons learnt and next steps

The main findings of the PLA, together with a number of activities identified by the participants that may help countries to improve their graduate tracking system and the combining and linking of administrative data and surveys, are presented below.

- There are a range of actors that need to work together effectively to ensure that national graduate tracking systems work effectively, including HEIs, ministries, data statistics offices and data protection teams.

- There is increased interest in using administrative data for graduate tracking, including as a complement to graduate surveys. To support this some countries are mapping available administrative data sources and looking into the technical and legal feasibility of using them for extended graduate tracking.

- Data protection is a key challenge to be overcome when linking and combining survey and administrative data. Some countries have addressed this by using hashing, which is a commonly used method to pseudonymise individual data.

- There is a need to organise and encourage discussions between HEIs, ministries, statistical agencies and data protection teams to improve data sharing and elicit better coverage and response rates for graduate tracking measures.

- The PLA provided inspiration in terms of the way graduate tracking data is presented and used in different countries.

  - Making graduate tracking data publicly available using user friendly and visually appealing tools, such as Power BI, can be an impactful way of disseminating the results.

  - There is considerable potential in how graduate tracking data is used. It can be used to advise prospective students on career choices and for quality assurance of the curricula. Graduate tracking data can also be used in performance-based education systems, with part of the funding for HEIs being determined by graduate outcomes.

  - Relative indicators are used in some countries to better reflect regional variations in labour markets.

- The topic of graduate tracking and the results of the Eurograduate 2022 survey can be promoted more widely, including through publication of data, to raise awareness and make information about specific countries available to stakeholders to allow for comparison and inspiration.

- There is a need to ensure that contact information for students and graduates is updated and maintained so they can be easily contacted for surveys. Alumni networks may play an important role in this regard.

- A culture of trust should be created so graduates understand the benefits of tracking their career path and feel confident about the use of their data. This can be combined with incentives and prizes to encourage higher response rates. Such prizes and incentives can include cash prizes or gift cards, but could also involve the generation of CVs or graduate profiles.

- National and/or bilateral follow-up meetings could be organised to discuss the results of the PLA and explore potential improvements. This could include exchanges with other colleagues, such as those in charge of the Eurograduate survey, but also analytics, policy and data protection teams, to improve the quality of surveys, facilitate better cooperation and enable synergies between data sources.

- Bilateral follow-up meetings with other attendees at the PLA could be held to share good practices. Some countries are finding it difficult to navigate data protection restrictions for combining and linking administrative data and survey data; and sharing of experiences from other countries may help overcome some of these obstacles.

- There is a need to explore how mobile graduates can be more fully captured in graduate tracking systems. There are also challenges in addressing data protection issues related to the sharing of data and in maintaining the trust of the public.

  o One potential solution could be the development of a central data repository for collecting administrative data across countries. However, this requires convergence in the data collected and definitions used by national authorities.

  o Eurostat would be expected to have a key role in any cross-country sharing of data and it would be useful to learn from any statistical experience that they may have in collecting and using individualised administrative datasets (in education or other policy areas).

- Considering the medium- to long-term perspective of the European Graduate Tracking Initiative, the involvement of the National Statistical Offices could significantly enrich the discussion on data integration and the expected results of the initiative.