
# Graduate tracking: a 'how to do it well' guide

Education and Training

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EUROPEAN COMMISSION

# Graduate tracking: a 'how to do it well' guide

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# Glossary

- **Graduates:** Learners who have successfully completed an education and training programme.
- **Tracking:** Structured follow-up with graduates to gather information about the outcomes of their education and training in terms of career and study pathways. This includes information on graduates' labour market integration, participation in further education and training, satisfaction with teaching, or participation in social and civic activities.
- **Online survey:** Participants being directed to a website or application and requested to provide responses to questions of interest. Participants are able to access online surveys through following a weblink, going to a web page or using mobile applications.
- **Telephone survey:** A common approach to data collection where trained interviewers contact participants by telephone and collect responses to questions of interest.
- **Paper-based survey:** Participants are sent a paper copy of the survey through the post and asked to provide responses to questions of interest and post the survey back to the researchers.
- **Systematic forms appraisal:** A review of a questionnaire by an expert using a specific coding frame.
- **Cognitive interviewing:** A type of in-depth or intensive interview that pays explicit attention to the mental processes respondents use to answer survey questions.
- **Administrative data:** Information derived from an administrative source, including national social security and tax data, public employment services data, learner enrolment and achievement data, registration with professional regulatory bodies and social media user data.
- **Longitudinal data:** Participants are tracked and asked questions of interest at several time points. This is done to assess change over time within the same sample group at different points in time.
- **Para-data:** Data that is generated as a by-product of a computerised data collection process, such as the number of web page views and length of time spent per page.
- **Control group:** A group chosen randomly from the same population as the programme/provider group that does not receive the programme. It is a stand-in for what the programme group would have looked like if it had not received the programme.
- **Comparison group:** A group of people that do not receive the programme under investigation and are compared to the group of people who receive the programme on measures of interest. Comparison groups differ from control groups in that they are not selected randomly from the same population as programme participants.
- **Sampling:** A subset of people from a wider group are selected to participate in research. This is done when it is not possible to include everyone from the population of interest.
- **Convenience sampling:** A type of non-probability sampling where the achieved sample is drawn from a population that is close-at-hand.
- **Purposeful sampling:** A non-probability sampling technique where the researcher selects a sample based on their judgement of the population characteristics.
- **Random sampling:** A subset of people from a wider group are selected randomly to participate in research. This is done to ensure no one has a disproportionate chance of being selected.
- **Stratified sampling:** A sampling technique where quotas are set for individuals that have particular characteristics to ensure a random sample reflects the characteristics

of the overall population. This is done to ensure that people from all the important groups are fairly represented.

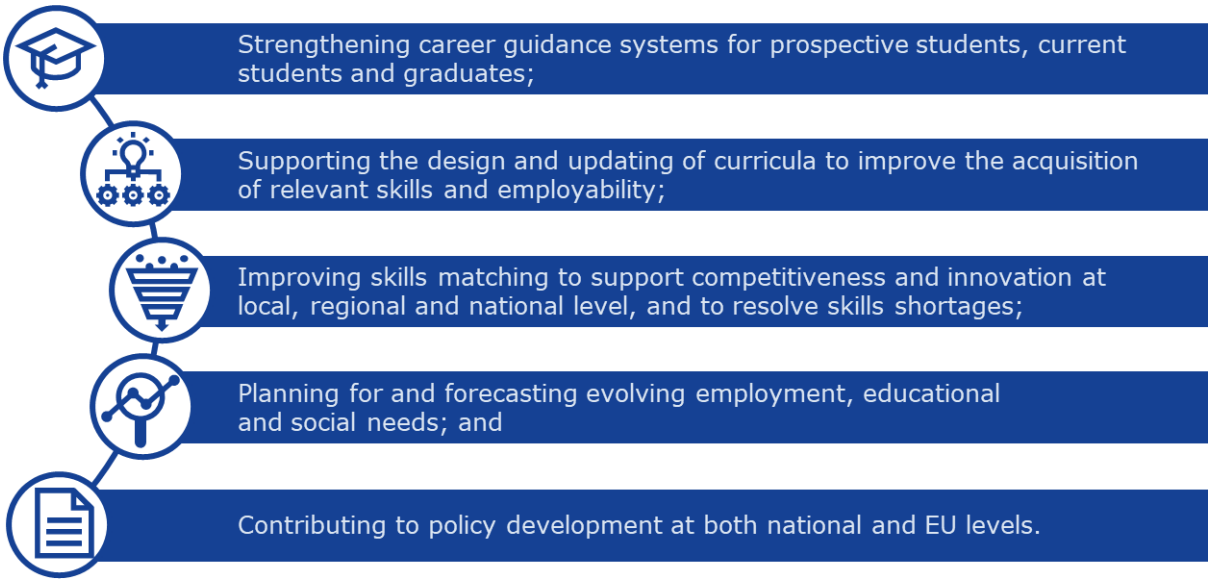
- **Cluster sampling:** Dividing the population into groups that are a small-scale representation of the whole population, which are then randomly selected in the sample.

# 1 Introduction

This guide aims to support country officials to develop or strengthen their measures for tracking their graduates. It includes effective practice in conducting graduate surveys and using administrative data. The guide was commissioned by the European Commission and produced by ICF Consulting Services Ltd.

## 1.1 Background and context

Tracking the destinations of graduates can provide crucial intelligence on the quality of learning programmes in higher and vocational education and training and the extent to which they meet labour market needs. This can be used for[1]:




The Commission's **New Skills Agenda for Europe (2016)** emphasised the need for countries to have a *'better understanding of the performance of graduates'*. To achieve this, the Commission proposed a new initiative on: 'graduate tracking to improve information on how graduates progress in the labour market'.[2]

The **Council Recommendation on tracking graduates (2017)** was subsequently issued. It proposed "making progress by 2020 on the establishment of graduate tracking systems"[3] and set out how they should be implemented. The Recommendation acknowledges that initiatives and systems for collecting information about leavers of higher and vocational education and training could benefit from improvement and standardisation.

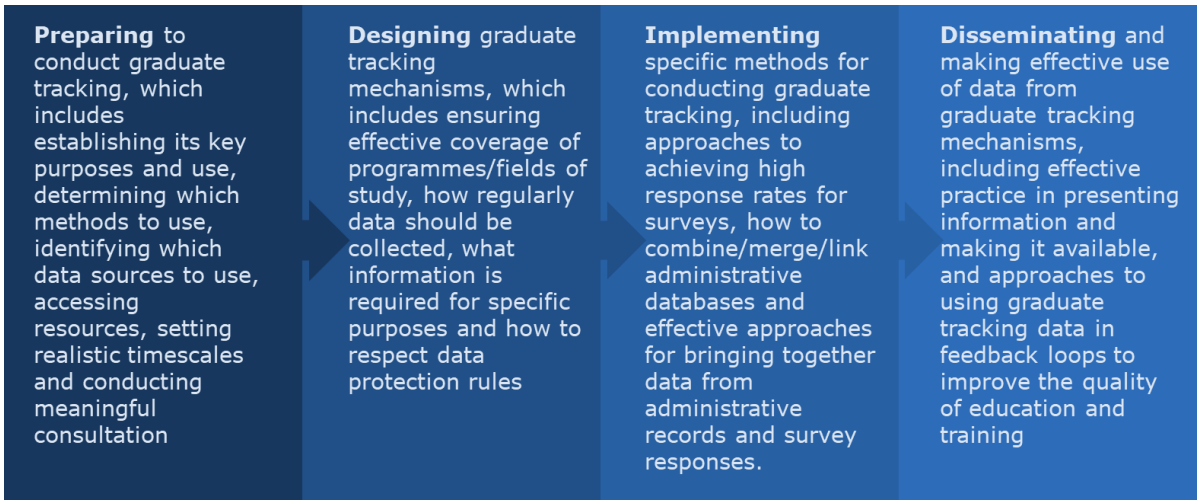
The ability to track graduates is also considered a core component of effective Quality Assurance systems as it provides a mechanism for gathering intelligence on skills utilisation in the labour market and placement rates. This is recommended in both the Standards and Guidelines for Quality Assurance in the European Higher Education Area (**ESG**), the European Quality Assurance Framework for Vocational Education and Training (**EQAVET**) and reinforced by the European Framework for Quality and Effective Apprenticeships.

[1] From the Council Recommendation of 20 November 2017 on tracking graduates (2017/C 423/01)
[2] Available at: http://europa.eu/rapid/press-release_IP-16-2039_en.htm.
[3] Available at: https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A32017H1209%2801%29#ntr12-C_2017423EN.01000101-E0012

## 1.2 The purpose of this guide

This guide aims to provide practical advice and lessons to support national and regional governments to achieve high standards in undertaking graduate tracking and to support countries to achieve the Council Recommendation on graduate tracking measures. It provides information on each step for undertaking graduate tracking, from preparation through to designing, implementation and dissemination (see Figure 1.1 below).

**Figure 1.1 Four steps presented in this guide**




The guide aims to provide information on the strengths and weaknesses of different approaches and lessons from the experiences of individual countries. It does not set out a prescriptive set of requirements for conducting graduate tracking, as it recognises that the approaches country officials wish to use will depend on the national or regional context.

## 1.3 Using the guide

The guide is aimed at officials in government and other agencies at national and regional levels with responsibilities for developing, implementing and maintaining graduate tracking measures in whole or part. For those who are developing or revising their approach the whole guide may be of value. For those who have established systems, the guide can be read as a stimulus to considering improvement or dipped into to provide guidance on a specific aspect of the process.

## 1.4 Research used to inform the guide

The guide draws on the following research, which was undertaken from September to December 2019:

- A desk review of existing research examining effective approaches for conducting elements of graduate tracking and of existing guidance material. In total, 11 documents were identified and reviewed in depth (included in Section 6);
- Desk research supplemented by interviews with country officials to map the graduate tracking systems in place in all EEA countries. This research helped to identify examples of good and effective practice and the contexts in which specific approaches add the most value; and

- Consultation with the Expert Group for graduate tracking convened by the European Commission[4]. Its feedback helped inform the design of the guide and provided information on effective practice.

[4] Further information is available at: https://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=3580&news=1

# 2 Preparation

This section sets out the steps that should be considered when undertaking the development of a new tracking measure or strengthening an existing approach.

## 2.1 Developing the 'business case'

The first step to building a business case for a graduate tracking measure is to identify its purposes. Setting this out upfront will help determine the best approach to data collection, the information that needs to be collected and the most appropriate sample size and tracking method.

Setting out the business case involves considering:

- **The rationale and need for the graduate tracking measure.** This requires examination of existing graduate tracking mechanisms (if they exist) and their coverage. There may be existing graduate tracking measures that could be extended to cover a new area or tracking undertaken independently by providers that could be adapted to improve standardisation. Extending an existing tracking measure is likely to be better than developing a new measure as it is more cost-effective and provides more opportunities for results to be compared with other initiatives. If there are no tracking measures in place, this requires an assessment of the costs and benefits of graduate tracking. This should consider what the measure will provide in terms of data and its uses. See section 5.
- **Key research questions the graduate tracking measure is trying to answer.** It is important to be clear on this upfront as it informs what data needs to be collected. Common questions that graduate tracking can answer include:
  - How well provision matches labour market needs (what proportion of graduates entered employment, what were their starting salaries, were the skills acquired during their programme/training used when they gained employment) and/or how well did it support graduates progress to further learning.
  - How particular types of qualifications and training (e.g. apprenticeships) are meeting expectations (what proportion gain employment in their field and level of study/training, how many progress to further learning, to what extent is employment sustained).
  - At a provider-level, the appropriateness of the content of courses or training (e.g. how well did the course or training prepare graduates for further learning and/or carrying out their job, how effective were their trainers/teachers in providing relevant learning).

  There may be additional questions for specific programmes, which acknowledge that different programmes may be expected to achieve different outcomes. In this situation it may be advisable to develop a framework of key questions for groups of similar education sectors and programmes to allow results to be compared.
- **Level of disaggregation required.** This determines whether sampling is needed, and if so, the size and type of sampling. Information may be required at programme level to inform funding decisions, or at a provider-level to inform decisions about funding allocation or to obtain useful data for providers' review of their service to learners. It may also be necessary to disaggregate information at course/training level or by group of learners (for example, to compare destinations of graduates from a disadvantaged socio-economic background to their peers).
- **How to measure what 'good' is.** For any type of programme (i.e. defined in terms of level or field or programme objectives), it is important to identify how results can be measured against a pre-set strategic national/ regional/ sector specific target or benchmarked against the results from other programmes or providers. Identifying metrics for measuring success is important for ensuring the information collected from

graduate tracking can be accurately interpreted. For example, metrics could be identified in the following ways:

- Defined by a national authority setting an expectation that, say, 80% of graduates on a specific programme progress to higher education or higher vocational education and training.
- Measured by its contribution to broader national/regional strategic objectives, such as its impact on improving productivity, reducing unemployment or in decreasing inequality.
- Defined by its contribution to economic plans for particular industries or regions, which could include increasing the volume of new entrants, increasing skills levels and addressing skills shortages and gaps.

- **The primary and secondary target audience.** It is important that consideration is given to who is intended to use the data produced by the graduate tracking measure, as this influences how best it should be disseminated. In this context it is important to distinguish between the primary audience and the secondary audience. For example, if the main objective of tracking is to strengthen career guidance systems, the primary audience may be policy makers, guidance providers and practitioners and prospective learners and their parents/carers. The secondary audience, who may also be interested in understanding the results from the graduate tracking measure, could include employers, providers and researchers. Planning should consider how to meet the needs of multiple audiences in terms of accessibility and presentation of information (such as level of aggregation, data visualisation), but prioritise the needs of the primary audience.

The business case should be developed in consultation with key stakeholders, such as policy makers, providers, learners, employers' representatives, trade unions, career guidance officers/practitioners, statistical agencies, researchers, sector skills bodies and chambers of commerce. This will help 'stress test' the rationale for the graduate tracking measure and ensure user needs are captured in the planning for the measure.

## 2.2 Determining graduate coverage

It is also necessary to define upfront the potential graduate population to be covered. This includes considering which graduates/school leavers to include in the measure. For example:

- **Whether to include early leavers.** This could help policy makers understand the reasons why some individuals have left their programme and what interventions could include programme retention
- **Whether to include graduates that have migrated since completing their studies.** This helps provide a rounded view of a programme, particularly when a high proportion of graduates migrate. However, it can be challenging to gather this information as some contact details will change and they may not be on some national registers. Therefore, specific approaches may need to be adopted to reach this group, such as by making initial contact through social media.
- **Whether to include international students or those taking part in mobility experiences in the country.** Capturing information on these learners can help identify improvements that can be made to better support learners from outside the country. This group can also be challenging to engage so it will be necessary to identify a targeted approach to gather up-to-date contact information.

It is also necessary to consider which education and training programmes should be covered and which providers are in scope. It is preferable to have the scope as large as possible.

## 2.3 Deciding on tracking methods

The methods that can be used to undertake graduate tracking depend on both the national context and the business case for conducting the tracking measure. There are a range of potential methods that can be used, each of which has its strengths and weaknesses. They are described in turn below.

### 2.3.1 Administrative data matching

In administrative data matching, data from public information sources (which typically include regional and national social security, tax and education databases) are used to identify what happens to graduates after they complete their learning programme. It generally requires data to be matched from one data set to another, such as an education database of graduates, using a unique personal identifier common to both data sets (such as a social security number or unique learner number).

The strengths and limitations of administrative data matching is presented below.

**Strengths**

- A strength of matching administrative data is that it provides information on nearly all graduates. In most countries, tax, social security and learner data is collected for all graduates, except those who have migrated to other countries. This means that the data results are robust and there are substantial opportunities to disaggregate the results for different types of provider, course or graduate.
- This also makes it easier to track graduates more regularly and to conduct longitudinal and dynamic analysis of the graduates' career and remuneration profiles.
- An additional strength is that it collects objective data rather than information that is self-reported. In surveys, countries have found that some graduates over-report earnings. In telephone interviews, some responses can also be misinterpreted by the interviewer or misunderstood by interviewees.

**Limitations**

- A limitation of administrative data matching is that it does not provide qualitative information on the quality and relevance of the course/training. For example, it does not capture evidence on how well a graduate's programme prepared them for their job, and their perceptions of the quality of their learning experience.
- An additional issue with data matching is that it commonly requires data from different Ministries/authorities. This may have legal and technical implications. Compliance with data protection regulations often requires that Ministries sign data sharing agreements establishing the types of analysis and use of data allowed, and who can access matched micro-data. There are also data security issues as combined data sets can contain sensitive data such as disability status, ethnicity, marital status, as well as information individuals would not like shared (such as their pay and tax contribution). In some countries, there may be a need to alter legislation to allow for data sharing with the purpose of graduate tracking.

### 2.3.2 Surveys

In a structured survey, graduates are asked to answer a standard set of questions. Surveys can be conducted online, by telephone or through paper-based methods. The strengths and limitations of surveys is presented below.

| Strengths | Limitations |
|---|---|
| • The strength of surveys is that they can collect information on graduate views and perceptions, which is more effective for understanding about the quality of a course. Through surveys, it is also possible to collect information on graduates' future plans, such as using a survey at the point of leaving a programme of study, and then a follow up survey to see if graduate perceptions or plans have changed, and on graduates other activities after graduation, such as their further training and education and their involvement in volunteering or community groups.<br>• Surveys are also relatively straightforward to undertake as they only require one data source (an education database) and can be conducted through a range of methods. | • A limitation of surveys is that they require a high response rate to provide data with a high degree of statistical confidence, and to disaggregate the findings by particular sub-groups. This can be costly to deliver and additional levels of disaggregation lead to a substantial increase in costs.<br>• When surveys are conducted using a census or convenience sampling, there is also a risk that those responding to a survey participation request may have different characteristics to those that do not agree to participate. This could potentially affect the robustness of the data collected. |

### 2.3.3 Combining administrative data matching and surveys

In this method, matched administrative data on a graduate is combined with survey data using a common personal identifier. The strengths and limitations of combining administrative data matching and surveys is presented below.

| Strengths | Limitations |
|---|---|
| • This approach can collect systematic data on learning, employment and other outcomes, while also identifying qualitative information on learner perceptions of their programme. Consequently, it gathers the most detailed information on graduate destinations.<br>• The data is also robust since the administrative data generally includes information on nearly all graduates. | • The key limitation of this method is cost, since it requires both a survey and data matching. However, the survey can be short because it does not have to collect information already included in the administrative data e.g. on socio-economic background, socio-biographical details, educational achievements, employment or pay. |

### 2.3.4 Deciding on longitudinal or one-off data collection

It is preferable to collect longitudinal data as this shows how employment status, earnings or other outcomes can vary at different points after a graduate has completed their programme. This provides information on graduate progression once they are in employment, and also whether the employment outcome is sustained. The Council Recommendation on tracking graduates proposes that countries collect longitudinal data on all cohorts of graduates.

When using administrative data, longitudinal analysis can be straightforward. Once there is an agreement on data sharing, then repeating the exercise of matching data at several points in time becomes relatively easy because the required data is already being collected

for other purposes. The only issue is if there are changes to the fields or structure of the administrative data set.

For surveys, collecting longitudinal data requires additional resources for conducting follow-up surveys with the same group of graduates. If conducting a longitudinal survey, it is necessary for a high volume of graduates to respond to the first survey because countries have found there is invariably a drop off in response levels to subsequent surveys. It would not be unexpected if a survey which received responses from 60% of graduates immediately after graduation only managed to obtain responses from 70% of these graduates again (i.e. 42% of the original population) in a follow-up interview a yearlater, and less than 50% five years later (i.e. 30% of the original population). This meansthat a most graduates, if not all, will need to be contacted in the first survey.

## 2.4 Allocating responsibility for collecting tracking data

### 2.4.1 Surveys

Surveys can be undertaken centrally by ministries and their agencies or devolved to providers. In our mapping study, we found that most countries did the former, with the survey managed and delivered by a mix of statistical offices, funding and quality assurance agencies and ministries.

A few countries request providers to conduct a graduate tracking survey. For these, providers must be given a standard questionnaire and detailed instructions on its issue to ensure they collect comparable data. Providers can be given the option to collect additional information.

A strength of the centralised ministry-led approach is that it brings efficiencies. The research only needs to be commissioned once. However, engaging providers to conduct the survey may ensure higher response rates as graduates may be more likely to respond to a survey from their provider than from a ministry or other agency.

A weakness of requiring providers to conduct graduate surveys is that there could be substantially different response rates per provider. This then affects how effectively findings at a provider level can be compared and the overall robustness of the research. It is particularly challenging when countries have a large number of providers.

### 2.4.2 Administrative data

Using administrative data may require more preparatory work in the beginning as the data can be collected by different Ministries which may have restrictions on how they can share the data. The *'Synthesis report on the 'Pilot projects to carry out ESF related counterfactual impact evaluations'*[5] found that this can be addressed by establishing a national centre responsible for administrative data linkage and delivery. Other countries have tasked organisations that have access to all Government data sources (such as National Statistics Agencies) to undertake graduate tracking using administrative data.

Effective use of administrative data requires long-term cooperation between data owners to ensure data is collected and shared in a consistent formal. It is therefore advisable to set multi-year protocols for data sharing and for ensuring the data fields required for matching data for graduate tracking remain consistent.

Many countries that use administrative data also divide responsibilities between a technical team that merge different data sets, and policy teams that then analyse and use the data.

[5] Leandro Elia, Giulia Santangelo, Sylke V. Schnepf (2015). Synthesis report on the 'Pilot projects to carry out ESF related counterfactual impact evaluations'

This approach ensures the linking of the data only needs to be done once but the results can be used many times. It also gives policy teams the opportunity to analyse the data as they wish.

For both administrative data and surveys, many countries have found it valuable to set out stakeholder responsibilities for graduate tracking in legislation and/or policy strategies. This ensures all partners have a clear understanding of their obligations and that they give sufficient focus to undertaking graduate tracking.

# 3 Design

This section sets out all the considerations to be taken into account in the design of graduate tracking measures.

## 3.1 Periodicity of cohort data collection

To support comparison across different cohorts and different tracking measures it is important to have a standard timetable for collecting tracking data. Graduates should be first contacted near enough to graduation so they are able to provide detailed feedback on their learning experience, but long enough for graduates to have time to achieve meaningful outcomes.

Exit surveys at the point of leaving a programme of learning can be an effective way of capturing graduates' initial perceptions of the quality of their course and their future plans, but these graduates need to be surveyed again at a later point to track their destinations and outcomes and how their perceptions on the quality and value of the course they undertook change over time.

Most of the graduate tracking undertaken in European countries takes place **three to twelve months after graduates have completed their programme**. Research undertaken to assess the feasibility of a Eurograduate survey[6] also identified a preference for the first survey to take place within 12 months of graduation.

Longitudinal data collection should take place at various points up to five years after graduation. After that, it is likely that any employment, pay or additional outcomes will be affected by factors other than graduates' learning experience. Most of the longitudinal graduate tracking measures in European countries conduct **follow-up around three and five years after graduation[7]**.

There is also potential scope in aligning longitudinal data collection with the timescales of other national or European time frames for collecting data. For example, the European Union Statistics on Income and Living Conditions (EU-SILC) collects longitudinal data over a four-year period.

## 3.2 Data to be collected for specific uses

Graduate tracking measures can collect information on the destination of learners and the quality of their education and training programmes. Most can also collect information on graduate and programme characteristics to allow the results to be disaggregated for particular groups. They commonly collect information on the following topics:

- Socio-biographical and socio-economic information, including place of residence
- Programme, field of study, mode of study, level of study and provider information etc.
- Employment status (full time/part time, permanent, temporary, zero-hours etc.)
- Progression to further learning and training
- Participation in social and civic activities
- Satisfaction with training and employment
- Relevance/utilisation of skills in the workplace.

Data fields that can be used to collect information on these topics are listed in Table 3.1 below.

[6] Eurograduate Consortium, 2015. Testing the Feasibility of a European Graduate Study
[7] European Commission, 2015 Mapping Graduate tracking measures in the EU/EEA.

Table 3.1 Potential data fields for graduate tracking measures

| Field | Purpose/benefits | Field | Purpose/benefits |
|---|---|---|---|
| ***Socio-biological and socio-economic information*** | | | |
| Age | Examine any differences between older and younger graduates | Domicile | Explore whether outcomes vary by area and type of area (urban/rural) and to monitor geographic mobility of graduates |
| Disability status | Explore the effectiveness of HE and VET in meeting needs of learners with disabilities | Parental income | Examine social mobility |
| Ethnicity/mother tongue | Measure the effectiveness of support targeted at specific ethnic groups or migrants | Parental attainment | Examine social mobility |
| Sex | Explore if there are any differences in outcomes between men and women | Marital/family status | Explore if marital status affects graduate outcomes |
| ***Course information*** | | | |
| Title of programme | Disaggregate impact by course/programme (if sample size allows) | Field of study | Compare the effectiveness of programmes in different fields |
| Programme levels (EQF and ISCED/ ISCED-F-13) | Explore variation in destinations by level | Type of qualification or programme (categories are often country specific) | Disaggregate findings for programme type (e.g. school-based VET, work-based VET, programmes) |
| Education or training provider | Disaggregate findings at a provider level | Type of provider | Compare graduate views and outcomes across types of providers to inform policy and funding decisions |
| Duration of programme | To examine the relationship between teaching hours for certain programmes and subsequent graduate outcomes | Source(s) of funding | Disaggregate findings by funding model (e.g social partner funded, state funded, or co-funded by the European Social Fund). Data on benefits, scholarships or student loans enables comparison of the cost-effectiveness of different approaches to delivery or different social measures in education |
| Study abroad | Inquire if learner has carried out credit or degree mobility abroad | | |
| ***Employments status*** | | | |
| Employed full-time or part-time, unemployed or self-employed | Measure progression rates to employment outcomes | NACE code of employer | Identify which sectors employ a larger or smaller proportion of graduates and measure vertical mismatch (where applicable) |

| Field | Purpose/benefits | Field | Purpose/benefits |
|---|---|---|---|
| Fixed term or continuous contract | Explore stability of work | Salary level | Examine the financial outcomes of graduates who study particular courses |
| Length of employment/ unemployment | Understand the proportion in longer-term unemployment and extent to which graduates are retained in work (mostly for longitudinal data collection) | Occupation | Explore progression in employment (mostly for longitudinal data collection) |
| Time spent on job search | Understand the level of difficulty in finding employment and identify the time required by graduates to gain employment | Way of accessing job | Explore what sources of accessing a job are particularly effective for certain types of graduates (e.g. public employment services, private employment agencies, referral, through advert, or work-based learning) |
| Location of work | Explore extent to which graduates have travelled for work and any regional variation in employment outcomes | Satisfaction with job | Explore how suitable the employment was for graduates and likely future retention |
| ***Further education and training pathways*** | | | |
| Participation in education and training | Understand if graduates have undertaken lifelong learning (particular valuable in longitudinal data collection) | Type of education or training programme (categories are often country specific) | Understand what types of additional qualifications or training graduates undertake in particular sectors |
| Level of education or training programme | Explore vertical education and training progression | Field of study | To what extent individuals have up-skilled or re-skilled |
| Reason for enrolling | Explore whether training was for progression in industry or to move to a different industry. Whether needed to meet gaps in their previous learning | Provider identification number | Explore level of progression to higher or vocational education providers |
| ***Relevance/quality of their training for the workplace*** | | | |
| Satisfaction with their programme | Determines the extent to which provision met graduates' expectations | Relevance of training/course content to their work | Explore the extent to which graduates believe their training was relevant for their job and career needs |
| Quality of teachers and mode of teaching | Examine graduate satisfaction with their teachers and/or the methods of learning | Whether the graduate plans to continue working in the sector for the next 5-10 years | Graduate satisfaction with working in the sector and the proportion that will stay in their current sector |
| Match between the content of graduates' course and their current occupation | Examine the proportion of graduates that are applying what they learnt from their study/training and utilising their skills in the labour market | Recognition of qualification in labour market | Extent to which graduate think their qualification is perceived by employers as providing good subject knowledge for career entry |
| Improved employment status after training | Extent to which the education or training programme has improved graduates' employability | | |

*Source: ICF research*

## 3.3 Respecting data protection rules in collection and dissemination

It is essential that the collection, analysis and dissemination of graduate tracking measures complies with the General Data Protection Regulation (GDPR) covering the processing and free movement of personal data. The key principles of GDPR are:

- Lawfulness, fairness and transparency in why data is collected and used
- Purpose limitation – having a clear purpose for data processing at the onset
- Data minimisation – ensuring personal data being processed is adequate, relevant and limited to what is necessary
- Accuracy – taking reasonable steps to ensure the data is correct
- Storage limitation – not keeping data longer than is needed
- Having appropriate security measures in place to protect the data
- Accountability principle – taking responsibility for the processing and collection of personal data[8].

It is necessary to access appropriate legal advice to ensure the data collection and processing for the graduate tracking measure complies with the GDPR regulation and national data protection regulations. This legal advice should in particular check that effective processes are in place for gaining permission to collect and process data, and that the data is stored and transported securely.

[8] General Data Protection Regulation (GDPR) – Official Legal Text. Accessed from: https://gdpr-info.eu/

# 4 Implementation

This section sets out the steps that should be undertaken when implementing or improving a graduate tracking measure. Separate guidance is provided for using surveys, matching administrative datasets and implementing a combination of both.

## 4.1 Using surveys

### 4.1.1 Selecting the most appropriate mode(s) of data collection

Once the content of the survey has been determined, consideration needs to be given to the collection method. There are a range of methods which can be used separately or in tandem:

- **Online/web/e-survey/mobile app:** This approach is currently the most common mode used across the EU and EEA for conducting quantitative graduate tracking surveys.
  - Strengths: Low cost, design flexibility (can be easily updated or changed), convenient for graduates as it can be done at a time that suits them, real-time access to data, enables data automation for input, handling, analysis and reporting, often quicker data collection.
  - Weaknesses: Reliant on email addresses and their accuracy, can limit response (some respondents in remote areas may not have suitable internet access), lack of a trained interviewer/helpline to clarify and probe can lead to less reliable data, poorly chosen distribution channels can lead to biased data or low response rates, less suitable for longer surveys as some respondents are less likely to stay fully engaged for more than 8-10 minutes.
- **Telephone interviewing:** This approach is another common survey method across the EU and EEA particularly with a purposive sample and a target for an achieved sample size**.**
  - Strengths: Trained interviewer can increase response rates by promoting the survey to interviewees, richer data from open-ended questions is possible, trained interviewer can improve data quality, more control in targeting specific types of sample.
  - Weaknesses: Higher cost than online survey, less suitable for complex questions with large number of response categories, reliant on accurate mobile numbers being available, possibly less convenient for graduates as calls likely to take place during working hours.
- **Postal paper survey:** This approach is less common across the EU and EEA.
  - Strengths: Relatively convenient for graduates, can reach all groups (including graduates without internet/phone), and can often be quickly completed.
  - Weaknesses: Typically takes longer to implement, increased risk of incomplete or incorrectly completed questionnaires, less suitable for open-ended responses, increased administration costs associated with distributing/getting back paper questionnaires, reliant on accurate addresses and inputting results for analysis.

Some countries have employed graduate tracking measures that employ all three approaches. Postal and online surveys are used to contact a high volume of individuals at a low unit cost. The telephone surveys are then used to supplement this by targeting non-respondents or those without up-to-date contact details. Qualitative methods such as interviews or focus groups with a very small sample of graduates can be used to supplement survey data to understand specific results in more detail.

### 4.1.2 Determining how to collect representative data on the population

Graduate tracking surveys can seek responses from the entire population of graduates in a country or a sample of them (from which inferences can be drawn about the wider population of interest). It is essential that the survey has an achieved sample by one of these means which provides sufficient data to meet the analytical requirements determined in the planning stage.

- A **census** is when survey responses are desired from the total 'population' of graduates from a given year. This is currently the most common approach used across the EU and EEA for survey measures tracking graduates. In theory, a census means that there is no variability in estimates due to sampling. However, it is expensive and, unless a good response rate is achieved, the results can suffer from significant non-response bias if graduates with certain characteristics have a lower response rate. In these cases, responses can be weighted.
- A **sample** is when survey responses are desired from a selected sample of the total 'population'. There are two main categories of sampling techniques which are used:
  - Non-probability sampling is where the samples are gathered in a process that does not give all the individuals in the population equal chances of being selected. This happens with convenience and purposive samples. While these techniques are often cheaper and quicker, they typically yield less reliable and useful data for drawing inferences about the total population of interest due to selection bias because some groups of the population are under-represented. It is therefore generally less suitable for national graduate tracking measures.
  - Probability sampling is where a sample is selected by a random mechanism (such as systematic, random, stratified and cluster sampling). If executed correctly, this sampling technique has no selection bias and should be more suitable for collecting robust data through national graduate tracking measures.

Before selecting a sample, it is important to have data that allows the creation of a **well-defined population** of graduates. This will vary depending on the sampling criteria but will likely require information on the year of graduation, the level and subject studied and the type of provider. It will also inform what characteristics may required from acomparison or control group.

### 4.1.3 Preparing a central database of graduate contact details

Staff responsible for learner records or alumni relations in individual vocational or higher education providers will generally have an existing record of learner and graduate contact details. Once appropriate data protection requirements have been met, this data should be shared with the organisation nominated to administer the national graduate tracking measure to collate in a standardised format. This database should contain all the information needed to contact graduates to complete the survey and to allow the creation of a sample, if one is being used. This could include graduates' name and contact details, as well as information on the year of graduation, the level and subject studied, the programme and the type of provider.

The quality of such a database can decline over time as graduate contact details change, so graduate tracking studies implemented at a later point after graduation, or longitudinal studies, must invest in maintaining the database to ensure contact details remain up to date. It is more likely to be kept up to date if the central organisation administering the national survey can match unique learner numbers to the latest records supplied by vocational and higher education providers. This can identify graduates that have updated their contact details with an individual provider to continue receiving alumni communications, or graduates that have commenced a new programme of study at a

different provider and supplied them with new contact details, and whether they are accurate.

### 4.1.4 Preparing dispatch materials and launching a web page

As well as making direct email/written contact with survey participants, some countries have found a **flyer** can be an effective way of presenting key information about the survey. Information on the flyer could include:

- A background to the survey and its objectives;
- How the survey is being implemented and when;
- Who is using the survey data and how;
- What graduates can expect and why they should respond to the survey;
- When (or if) results will be published; and
- Details for contacting the survey team.

Some countries have sent flyers to graduates, current learners and education and training provider staff to help promote the survey and increase participation.

A few countries have also created a **web page** or website for the survey. This presents survey information and also allows graduates to submit any queries on the survey. The web page commonly contains:

- A background to the tracking measure and its objectives,
- How the survey is being implemented and when;
- Who is using the survey data and a privacy statement on data protection; and
- When (or if) results will be published.

### 4.1.5 Testing the survey to ensure it is fit for purpose

The graduate tracking questionnaire should be piloted face-to-face by interviewers with actual members of the intended graduate population. This can systematically test and refine the wording of individual questions and check the flow of the questionnaire as a whole. If the questionnaire is computerised, it also needs to be tested for programming errors.

For interview surveys, some general guidance is that the minimum number of respondents it should be tested with is about 20-40 (Czaja and Blair, 2005). Rigorous testing for the new national Graduate Outcomes survey in the UK involved face-to-face cognitive interviewing with a carefully selected sample of 95 graduates about the survey, supplemented by testing of the online survey with a further 1,094 graduates which included a small number of additional questions asking graduates about their experience of completing the questionnaire (IFF Research, 2018).

The process of questionnaire testing is usually slightly different for interview surveys and self-completion surveys, such as online and postal surveys. A simple three step approach for each method is outlined below.

| Interview surveys | Self-completion surveys |
|---|---|
| **Step 1:** Informal testing with friends or colleagues. | **Step 1:** Informal testing with friends or colleagues |
| **Step 2:** Expert or other non-field testing, such as expert review, systematic forms appraisal, cognitive interviews or focus groups. | **Step 2:** Expert or other non-field testing, such as expert review, systematic forms appraisal, cognitive interviews, focus groups or respondent debriefing and analysis of para-data (such as data on views and time spent on online survey web pages). |

| Interview surveys | Self-completion surveys |
|---|---|
| **Step 3:** Field test with respondent debriefing questions. | **Step 3:** Consider a second non-field test or a field test. |

Good testing of a questionnaire involves understanding the reasons for any response error or non-response, as well as problems, such as difficulty interpreting specific words or phrases in questions or confusion about the layout of the questionnaire.

Respondent **debriefing questions** are special follow-up questions used to determine respondents' understanding of survey questions. This could involve asking respondents for their interpretation of specific words or phrases or how they came up with their answer. Debriefing questions usually fall into a few key categories:

- General prompts
- Comprehension
- Recall/judgement
- Visual layout

### 4.1.6 Obtaining high response rates

A key challenge to any survey is to achieve a sufficient response rate to allow results to be disaggregated to answer all the key research questions. In countries undertaking graduate tracking with surveys, the highest survey response rates were typically around 60-70% for telephone surveys and 30-60% for paper-based or online surveys.

Below are some of the activities that countries have undertaken to boost survey response rates:

- **Keeping the survey short and clear.** Longer surveys generally have a lower response as participants can lose interest or do not have the time to complete all the questions. This is a particularly common issue for paper-based or online surveys. A short survey should only take 8-10 minutes for a participant to fill.
- **Sending targeted and regular reminders.** Reminder actions are an important way to increase survey response rates. Evidence from many graduate tracking studies indicates that at least two reminder actions should be undertaken. These reminders can be sent through email, text, letter or a combination of these.
- **Providing a helpdesk.** During data collection, some graduates may have questions about the graduate tracking survey, such as specific elements of its content or technical issues (particularly for an online survey). Failure to resolve these issues can affect response rates. To address this, some countries have provided a helpdesk (telephone and/or online) to provide advice and guidance about answering the questionnaire and troubleshooting to solve any technical problems.
- **Monitoring and analysing survey responses to take targeted corrective action.** This includes ensuring regular information is collected on the overall number of responses and the number of responses for sub-groups to identify any groups that are under-represented.
- **Checking the quality of survey responses.** This is particularly important for paper-based and online surveys. Responses which are incomplete or inaccurate may need to be removed from the overall responses. It is therefore important to monitor the quality of responses in real-time. A quality check of a survey should consider:
  - Whether the questionnaire has been completed by a member of the target group;

  - Whether the responses have been completed accurately and seriously. This includes checking if respondents have provided the same answer for all questions (e.g. entered three on a five-point scale);
  - Clarity and consistency of answers. This includes checking that respondents have kept to the rules given in the questionnaire, which is a particular problem for paper-based surveys because there are no checks in place to ensure the survey is answered correctly.

  If issues arise, it may be necessary to re-contact individuals to finalise the survey. This may need to be built into the timetable for the tracking measure.
- **Creating links with other websites/organisations that have regular contact with graduates.** This includes promoting the survey though private sector recruitment agencies, or job search websites to raise awareness of the survey.
- **Using mobile apps or mobile friendly online surveys** that make it easier for many young people to respond on the go and with the electronic device they use most often.
- **An incentive could be provided,** for example a travel voucher - usually only for a limited number of participants (by a random drawing). Also survey participants could be given the option to be kept informed on the results of the survey, thus enhancing the graduate's involvement and understanding.

Below is an illustration of a tracking survey that achieves a high response rate.

**Alma Laurea (Italy)**

Alma Laurea was introduced in 1998. It is part of a wider initiative that aims to be a one-stop-shop for graduates seeking employment. The survey is run by an inter-university consortium comprising 75 of the 98 Italian universities and is funded through member contributions.

The survey is conducted annually and is cross-sectional and longitudinal. Graduates are surveyed one, three and five years after graduation. In conducting the survey, graduates are first sent an email link to an online survey. Non-respondents are then contacted by telephone. The response rate for the first wave of research was 70%, and in subsequent years (where those interviewed in the first wave are contacted again) the response rates were around 50-60%.

The survey collects information on:

- Employment outcomes (employment status, hours worked, type of contract, time to first job after graduation and the sector and area of their work)
- Use of skills and degree (impact of degree on their work, use of skills acquired, its adequacy for their job)
- Satisfaction with job
- Salary information
- Progression to further studies

The high response rate has been attributed to the visibility of the interconnected services provided by Alma Laurea. The tool is widely used by graduates, and most register for the system, which means their contact details are straightforward to access. The use of a mixed online and telephone survey was also effective in improving the cost-effectiveness of the tracking measure.

## 4.2 Using administrative data matching

### 4.2.1 Investigating the practicalities of data supply

The first task for administrative data matching is scoping the available data sources. This includes understanding:

- **What data sources are available.** Most countries use employment, tax and social security data, linked to education data sources. However, the latter may include multiple data sources and variables for each of the different groups of graduates - HE, VET, schools. Some data sources may also be held by training providers in the private sector with additional barriers to access. The first step to undertaking administrative data matching is therefore mapping this potentially complex landscape.
- **The purpose of particular data sources.** It is important to understand what the administrative data is primarily used for as this will help to understand how accurate it is. Data used specifically to inform tax and social security payments are likely to be accurate, as the data on earnings needs to be correct for the payments to be correct. Earnings data collected from a labour force survey may be less accurate as they are not designed to evidence payments and respondents may not have exact figures to hand when interviewed.
- **Scope and coverage of the data (including limitations).** It is wrong to assume that all information collected by administrative data will be accurate. Some information may not be collected or checked by users if it is not necessary for the primary purpose of the data source. Moreover, there may be known issues about the quality of some data fields, or legislation which restricts the sharing of the data source. It is important to understand these issues, ideally through discussions with the data holder.

### 4.2.2 Developing a data sharing agreement with partners

Data sharing by government departments, agencies or other organisations is restricted by their legal responsibility for the data they manage. Therefore, accessing it will require establishing a data sharing agreement between key data holders. The data sharing agreement should set out:

- Arrangements for accessing data and the format of the data;
- Rules for how the data should be used;
- How the data can be shared;
- Restrictions to the publication that can limit the disclosure of personal data (minimum thresholds for reporting).

The data sharing agreement may also need to include any third parties that will also use the data, such as the national statistics agency or a contractor.

Administration data fields or systems collected by third parties can be altered over time depending on the needs of the data holder. It is therefore important to know about any changes to the environment in which the data is collected and findings from any relevant audits. Individuals using matched administrative data for graduate tracking should ideally be involved in decisions on any changes so that they do not affect ongoing graduate tracking activities.

### 4.2.3 Linking different administrative datasets to track graduates

The next step requires matching the various administrative datasets. Matching relies on linking datasets using one or more shared fields such as:

- Full name

- Sex
- Address/postcode
- Date of birth
- Social security number
- Unique learner number

It is best to primarily use a field which is not personal data. There are also likely to be issues concerning the precision with which the data can be matched and the likelihood of errors and mismatches arising in the process of data linking. The method for matching will depend on the likely degree of error and/or attrition in the resulting matched dataset. It can be done through:

- **Deterministic (or exact) matching:** This method relies on all-or-none matching, whereby if the all fields do not match exactly in the two datasets then the match is rejected. It is only possible for high-quality data that have a large volume of similar fields.
- **Probabilistic matching:** The rules (or tolerance levels) are applied to maximise the probability that two records belong to the same individual - rather than matching by chance or due to coding error.

Some countries use a unique identifier to match/link administrative datasets, rather than personal data, such as a name or date of birth. This can anonymise the dataset, providing data is not available that links the unique identifier to the learner. However, for added security a few countries use an encrypted unique identifier for linking data sets.

**Higher Education Outcomes, Ireland**

In Ireland, the Central Statistics Office (CSO) and the Higher Education Agency (HEA) developed an Educational Longitudinal Database that since 2014 has collected information on outcomes for HE graduates one, three and five years after graduation. It was produced by matching datasets on learners who have completed HE programmes to other datasets describing their outcomes in subsequent years. The latter include employment and self-employment datasets from the Revenue Commissioners and benefits data from the Department of Employment Affairs and Social Protection.

The tracking measure gathers data on:

- Highest level of education attainment
- Labour market status
- Occupation
- Skills
- Sector of the graduate's employer

HEA worked with the CSO to set a specification for the research. CSO is an approved user of Government data and therefore already had data agreements in place to access the relevant data.

The only limitations of the data are that it does not capture information on graduates that have migrated or are economically inactive. Additionally, the data provided is basedon learners that graduated five years previously. Consequently, it does not give an up-to-date picture on the quality of current HE programmes.

## 4.3 Using a combination of survey and administrative data

Some countries have developed a combination of surveys and administrative data to collect graduate destination data. This has been used to:

- Fill gaps in existing data. For example, a few countries match destination data with other learning data sets to identify graduates who have progressed to further study or learning. A survey is then conducted on the remainder of graduates to gather information on their destinations. This is considered to be more efficient than conducting the research wholly through surveys and more complete than relying solely on administrative data.
- Link qualitative data from surveys to the administrative data to enrich the analysis. Here the surveys collect additional data that is not available through the administrative data and provide both context and perceptions for the analysis of findings from administrative data alone.

An example of the use of surveys with administrative data is presented below.

**Graduate Outcomes Survey, England**

England conducts research on Longitudinal Employment Outcomes (LEO) that links school census, Further Education, Higher Education Statistics Agency and Her Majesty's (HM) Revenues and Customs data to record the impact of learning attainment on earning and employment data.

To complement the LEO data, the Government also commissioned from 2019/20 a Graduate Outcomes Survey (GOS) of HE graduates. GOS add to the LEO data by providing qualitative information about graduates' job role (such as their duties and responsibilities) and the extent to which they are using the skills they acquired from their higher education programme. It is linked to the LEO data using a unique identifier to create a merged dataset.

GOS is a census survey aiming to gain responses from 70% of all graduates at HEIs. It captures information on graduate perceptions and collects data that goes beyond employment and income. It is conducted 15 months after graduation through a mix of online and telephone surveys.

The GOS is managed centrally by the Higher Education Statistics Agency, with HEIs providing an up-to-date list of contacts of their graduates. The survey contains core and optional questions. The core questions cover:

- Job title and duties, including supervision responsibilities
- How the current job was found
- What further study have they conducted since graduation
- Skills from their course that they are using in their work
- Current activities and future plans.

Optional questions can be included by HEIs for a fee.

The raw survey data can be accessed by HEIs to inform their business planning. The data is also used in the Teaching Excellence Framework in England to evaluate HEI teaching standards.

# 5 Dissemination and use

This section explores the various of ways data from graduate tracking can be used and how the information has been disseminated so that others can use it and the analysis is shared.

## 5.1 Potential uses of graduate tracking data

Graduate tracking data has been shown in various EU and EEA countries to provide value to a range of stakeholders spanning from the individual orientation to the provider and national levels, serving policy makers as well as practitioners. These include:

- **Careers advisors, learners and parents:** Enabling prospective learners to compare programmes and providers and make more-informed decisions. In some countries, the data from graduate tracking has been published by providers and/or national agencies to demonstrate the effectiveness of their provision in terms of learner satisfaction with their programme and the proportion who subsequently progressed to employment or further learning. Some have also produced average starting salaries for graduates in particular occupations/sectors
- **Providers:** Providing intelligence to inform the effectiveness of particular programmes and areas where they can improve their curriculum/training offer. Some countries that undertake system-level graduate tracking release the data by region or provider level to allow providers to compare their programmes against their peers. Providers use this intelligence to identify programmes that they need to change or discontinue, and examples of effective practice that can be shared across learning departments.
- **Higher and vocational education funding agencies:** Identifying the extent to which providers and programmes/training are effective and meeting expectations. Some countries have used graduate tracking data to negotiate the programmes they expect providers to deliver. This includes identifying what programmes/training are working well and what should be discontinued or improved as well as the number of programmes that are needed to meet labour market needs. A few have also used it to inform the funding settlement for providers, with providers that are able to demonstrate effective outcomes, such as high levels of graduate entry to employment, given additional (flexibility of) funding to grow provision in areas that are meeting local/regional labour market needs.
- **Quality assurance agencies:** As an additional metric to measure the quality of provision. A few quality assurance agencies use destination as part of their inspection and monitoring of higher and vocational education providers.
- **Government education policy makers:** To monitor policy implementation and identify areas of improvement. Some countries have used graduate tracking to identify the extent to which particular funded programmes are helping individuals to enter sustained employment. It has also been used to test the effectiveness of pilot and new programmes, so compare the supply of graduates with labour market forecasts and the economic returns for particular training programmes.
- **National and sectoral labour market actors:** To understand the proportion of graduates that progress to particular sectors and to what extent they stay in the sector. This helps professional bodies and others understand the extent to which the education system is delivering the skills needed by industry.
- **Trade unions:** To understand the extent to which recent graduates are utilising the skills they have learnt from their education or training programme and the skills needs of recent graduates. This can inform their work supporting employees.
- **Labour market researchers:** To understand the benefits and value of particular education or training programmes. Some countries have used graduate tracking data, and particularly those which match administrative data, to estimate the starting

salaries for graduates in particular occupations and sectors. Such data has also been used to measure the economic return on investment for sector programmes at various ISCED/EQF levels.

**Vipunen – Education Statistics Finland**

In Finland, the National Agency for Education (EDUFI) is required by legislation to provide relevant data for the purposes of decision making in the field of education. To do so they produce with the Ministry of Education and Culture an administrative data set on graduate tracking which draws on data and registers collected by Statistics Finland, the Ministry of Education and Culture, EDUFI; increasingly using the CSC – IT Centre for Science systems.

To share the data, EDUFI has developed a Vipunen dissemination platform which presents anonymised tables and data visualisation. The platform approach helps the authority to ensure that sensitive information is protected, while also allowing all key stakeholders to access detailed data and produce bespoke tables.

The data on Vipunen is used widely by education authorities, providers and career advisors. It has helped inform national level policy making and regulation, including the recent vocational education reforms in Finland. The data on placements after qualification is also used to inform the funding allocation for vocational and higher education providers, with better performing providers receiving more funding to support learners.

## 5.2 Analysis of graduate tracking data

To meet the needs of the various users described above, graduate tracking data needs to be analysed at various levels. The level of detail will depend on sample sizes, but should ideally include analysis by:

- Occupation/sector of studies, to identify the effectiveness of higher and vocational programmes in meeting employer/economic needs, and the salary increases for gaining particular education and training programmes
- ISCED/EQF level, to identify the salary/employment rates for learners on different level programmes and any vertical mismatches (e.g. overqualification).
- Programme type, to demonstrate the impact and effectiveness of particular programmes, such as apprenticeships or European Social Fund (ESF) co-funded programmes
- Region, to explore any geographical differences in outcomes and whether providers/graduates in particular areas need additional support
- Provider, to explore how the provision in some providers compares to others and the areas in which providers need to improve
- Graduate characteristics (such as sex, ethnicity, disability status, age, socio-economic background, migratory status, study abroad etc.), to explore how the outcomes of particular groups of graduates compare to their peers

To be meaningful, any analysis needs to be benchmarked against a similar comparison group. For example, a provider of similar type and size, and those based in similarly prosperous areas in terms of labour market opportunities. Additionally, the outcomes of graduates could be compared to a similar set of individuals that are non-graduates.

**Use of micro-census data to examine labour demand and supply in Germany**

In Germany, the Federal Institute for Vocational Education and Training (BIBB) uses data from a census of 800,000 residents per year (9,000 currently in VET) to understand the qualification that graduates achieve when they leave the German education system. This is then compared to labour market forecasts to:

- Compare the projected new entrants to a sector up to 2035 with the number of job vacancies due to replacement demand and job growth. This helps identify sectors which may experience skills shortages in the next few years
- Explore the future labour supply by qualification levels (i.e. the number of new entrants to the labour market with academic degrees, advanced training qualifications, general vocational qualifications and without any formal training). This is used to identify qualification levels where learner numbers need to grow to meet demand
- Identify any particular groups in the population that are under-represented in particular sectors or at particular qualification levels.

The research is used to inform policy decisions on where there are 'market failures' that need to be addressed by national authorities. Additionally, it also helps providers understand specific areas where they need to increase learner recruitment to meet labour market needs.

## 5.3 Sharing of graduate tracking data

The extent to which graduate tracking measures can be used by various stakeholders depends on how information is disseminated. Countries have adopted a range of approaches to dissemination, but effective practice generally consists of:

- Providing summary data in an easily accessible format, either online or in print. This allows a range of stakeholders, including parents, learners and users of labour market data, to gain headline insights from the information
- Providing comparison tables to allow key stakeholders to compare the effectiveness of particular providers and programmes, if sample sizes allow. This can be either produced specifically for careers advisory services or published so that it is accessible to learners and parents
- Providing benchmarking and comparison data for providers. A few countries provide additional data for providers to allow them to assess the effectiveness of their programmes. In countries where providers are required to support the delivery of graduate tracking measures, this encourages them to participate, as it enables them to gain value from the information they have collected.
- Allowing raw data to be available to researchers, providers and other interested stakeholders. This should only be provided if sufficient safeguards are in place to avoid the data being misused. The raw data allows researchers to conduct specific analysis of the graduate tracking measure to answer specific questions that are in the public interest.

The presentation of graduate tracking data should be accompanied by information on the methodology for conducting the graduate tracking measure and any data limitations. This could potentially be through a technical annex that sets out the key survey questions, sampling criteria (if any), responses/response rates and extent to which the response matches the graduate population, groups that are under-represented, data sources used, matching criteria, and any issues on the quality and accuracy of the data.

# 6 Further reading

Cedefop. 2016. Carrying Out Tracer Studies. Available at: https://www.cedefop.europa.eu/files/2218_en.pdf

Czaja, R., and Blair, J. (2005) Designing Surveys: A Guide to Decisions and Prodedures. 2nd Education, Thousand Oaks, CA: Pine Forge Press.

Department of Education (DfE). 2018 Destinations Data: Good Practice Guide for Schools. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/748165/Destinations_good_practice_guide_for_publishing.pdf

Education Advisory Board, 2010. Tracking Post-Graduation Student Success. The Advisory Board Company, Washington D.C. Available at: https://www.uky.edu/ie/sites/www.uky.edu.ie/files/uploads/Tracking%20Post%20Graduate%20Student%20Success.pdf

Eurograduate Consortium, 2015. Testing the Feasibility of a European Graduate Study. Available at: https://www.eurograduate.eu/eurograduate/download_files/eurograduate_feasibility_report.pdf

Gaebel, M., Hauschildt, K., Mühleck, K. and Smidt, H., 2012. Tracking learners' and graduates' progression paths TRACKIT. Brussels: European University Association. Available at: http://krasp.strony.uw.edu.pl/wp-content/uploads/sites/2/2014/09/trackit_publication_final.pdf

Groves, G. and Palmer, I., 2015. Tracking Graduates into the Workforce: Connecting Education and Labor Market Data. NGA Center for Best Practices. Available at: https://files.eric.ed.gov/fulltext/ED570492.pdf

IFF Research (2018) Graduate Outcomes Cognitive Testing Technical Report. Available at: https://www.hesa.ac.uk/files/Cognitive%20Testing%20Technical%20report.pdf

Klein, S., Pedroso, R., Anderson, S. and Charner, I., 2006. Guide for conducting Perkins placement follow-up surveys. Berkeley, CA: MPR Associates. Available at: https://www.rti.org/sites/default/files/resources/perkins_survey_guide.pdf

Lamoure, J., 1995. Follow-up and Tracer Studies: A Series of Training Modules and Related Exercises for Educational Planners and Administrators. International Institute for Educational Planning. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000120340

Local Government Association (LGA). 2013. Tracking young people: A "how to" guide for councils. Available at: https://www.local.gov.uk/sites/default/files/documents/tracking-young-people-how-68f.pdf

NIACE. 2014. A guide to tracking learner destinations. Department for Business Innovation & Skills. Available at: https://www.learningandwork.org.uk/wp-content/uploads/2017/01/A-guide-to-tracking-learner-destinations.pdf

Schomburg, H. 2014. Key Methodological Issues of Tracer Studies – Challenges for a Guide on Tracer Studies. Available at: http://www.nvf.cz/assets/docs/ee55c2515f5533d2bb629ce8fa2f5d94/623-0/shomburg-tracer.pdf

Schomburg, H., 2003. Handbook for graduate tracer studies. University of Kassel, Germany: Centre for Research on Higher Education and Work. Available at: http://www.unhas.ac.id/hasbi/LKPP/Hasbi-KBK-SOFTSKILL-UNISTAFF-SCL/Hasbi-UNISTAFF

DOCUMEN/MODUL%20UNISTAFF%20SURABAYA%202006/QTL/tayangan/Handbook%20of%20Tracer%20Study.pdf

The UK Government Department for Business Innovation and Skills, 2013. Review of the Economic Benefits of Training and Qualifications, as shown by Research based on Cross-Sectional and Administrative Data. Available at: https://www.gov.uk/government/publications/review-of-the-economic-benefits-of-training-and-qualifications-research-based-on-cross-sectional-and-administrative-data

Groves, G. and Palmer, I., 2015. Tracking Graduates into the Workforce: Connecting Education and Labor Market Data. *NGA Center for Best Practices*. Available at: https://files.eric.ed.gov/fulltext/ED570492.pdf

Asociación Columbus, 2006. Manual de instrumentos y recomendaciones sobre el seguimiento de egresados. *ITESM: México*. Available at: https://www.almalaurea.it/sites/almalaurea.it/files/docs/universita/altro/red_gradua2.pdf

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