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Good practice recommendations for implementation of career-tracking survey of doctorate holders

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## Good practice recommendations for implementation of career-tracking survey of doctorate holders

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## European foreword

This CEN Workshop Agreement (CWA 17987:2023) has been developed in accordance with the CEN-CENELEC Guide 29 “CEN Workshop Agreements – A rapid prototyping to standardization” and with the relevant provisions of CEN/CENELEC Internal Regulations - Part 2. It was approved by a Workshop of representatives of interested parties on 2022-11-15, the constitution of which was supported by CEN following the public call for participation made on 2022-09-29. However, this CEN Workshop Agreement does not necessarily include all relevant stakeholders.

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## Introduction

According to the Salzburg II Recommendations (EUA, 2010) [1], “The core component of doctoral training is the advancement of knowledge through original research. At the same time, it is recognised that doctoral training must increasingly meet the needs of an employment market that is wider than academia.”

Career tracking has become increasingly recognised as a necessary monitoring tool to map doctorate holders’ career paths in academia and beyond, and to evaluate doctoral programmes. Career-tracking surveys enable collecting high-quality data on doctorate holders’ employability and skills utilisation, as well as tracking the quality of doctorate education, and its impact assessment at individual, institutional and systemic levels. Career tracking studies are useful for:

- 1) Getting feedback from doctorate holders working in the variety of academic and non-academic sectors to identify any skills mismatches and adapt doctoral skills training curricula.
- 2) Enabling universities and alumni services to enlarge and exploit their professional networks, to get feedback on relevance of doctoral training curricula and to conduct better and more appropriate career counselling.
- 3) Gathering doctorate holders’ contact information and enabling local alumni networking and mentoring initiatives, and therefore improving involvement of the non-academic sector in doctoral training.
- 4) Supporting, by promoting standards for implementation, higher education institutions to adjust and improve their doctoral training based on actual career trajectories of doctorate holders and market requirements.

One of the main outputs of the DocEnhance project, the career-tracking survey of doctorate holders from nine European universities (Boman et al, 2021) [2], intended to enable gathering of information on doctorate holders’ employability and skills utilization and to facilitate a sustainable and harmonized assessment of doctoral education in Europe. Thus, the current good practice recommendations for implementation of the survey represent a practical guide for the universities wishing to implement a career-tracking survey similar to the one carried out as part of the DocEnhance project. The issues covered include survey design, planning, survey management and legal aspects.

In this regard, the guidelines with recommendations are published as a European voluntary standard to increase outreach, impact and longevity of career paths tracking beyond the DocEnhance project partners. The purpose of this document is to assist higher education institutions in running their own doctorate graduate tracking for increasing the relevance of their doctoral research and training.

## 1 Scope

This document gives practical recommendations for implementation of career-tracking surveys. The current guidelines are meant for universities wishing to set up an institutional career-tracking survey.

These surveys can be set up by higher education institutions, grant funding agencies or national statistics bodies, with the purpose to improve doctoral education and/or assess its quality and impact at an institutional or national level. It includes among others, surveys that trace back doctorate holders' careers over several years, cohort studies at several moments in time or longitudinal surveys (based on the definition of career tracking of researchers, European Science Foundation, 2012 [3]; definition of tracking in EUA's "Tracking Learners' and Graduates' Progression Paths" project [4]).

## 2 Normative references

There are no normative references in this document.

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

### 3.1 career-tracking of doctorate holders

systematic approach set up to follow doctorate graduates' career pathways

### 3.2 doctoral programme

programme that is designed primarily to lead to an advanced research qualification (EQF Level 8), are devoted to advanced study and original research and are typically offered only by research-oriented tertiary educational institutions such as universities (International Standard Classification of Education (ISCED) 2011) [5]

### 3.3 doctorate graduate doctorate holder

person who has successfully completed their doctoral degree (includes both graduates with doctorates and PhD holders)

## 4 Overview of career-tracking surveys

Career-tracking studies of doctorate holders can be organized at international/European, national, regional and institutional levels.

The European University Association – Council for Doctoral Education (EUA-CDE) groups existing career-tracking initiative under four types based on their purpose and methodology (EUA-CDE, 2020, p. 10-11) [6]:

- graduate surveys and exit pools;
- national graduate surveys;

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- c) surveys based on registered data;
- d) digital alumni platforms.

The EUA-CDE report stresses that it is important to fully consider the purpose of the study to choose the best fitting methods to collect data on doctorate graduates. The report discusses the advantages and disadvantages of each type of survey: e.g., low response rates in case of institutional or national surveys of doctorate holders, as well as the lower reliability of data (based on respondents' perceptions or opinions) compared to e.g., register-based data on employment. On the other hand, institutional surveys allow for more fine-grained data to be collected compared to national surveys and register-based surveys, adapted to the needs of the participating institutions or programs (e.g., on satisfaction with doctoral training, or its impact on careers), and enable to reach and collect data on doctorate graduates who have moved abroad.

**5 Legal aspects****5.1 General**

The universities setting-up a career-tracking survey are responsible for complying with the applicable international, EU and national laws (in particular, at the EU level the GDPR [7] (see 5.2), national data protection laws and other relevant legislation) on the protection of individuals with regard to the processing of contact and personal data. When carrying out a career-tracking survey, data privacy laws and regulations should be respected while contacting doctorate graduates and collecting data.

**5.2 Consent form**

Before starting to fill out the questionnaire, respondents should sign an informed consent form. An example of the Informed Consent Form used for the DocEnhance project is provided in Annex B. The informed consent form should consist of two parts:

- 1) Information sheet (for sharing information about the purpose of research, type of research intervention, participant selection and voluntary participation, procedures and duration of the questionnaire, risks and benefits, confidentiality and sharing of results, right to refuse or to withdraw and contact to do it, if needed), and
- 2) Certificate of consent (for signature).

**5.3 GDPR and survey protocol**

There are some aspects to bear in mind:

- 1) Organizations are responsible for respecting the GDPR regulation at the European, national, and institutional level for guaranteeing the respect of personal data; contacting a university data protection officer or legal advisor is necessary to explore the possible ways to contact the doctorate alumni and handle the collected data.
- 2) Some organizations require to first obtain the consent from the graduates to contact them for a follow-up career-tracking survey after graduation. Other organizations may only have institutional emails which may have become outdated or not used.
- 3) Ideally, at the moment of collecting doctoral researchers' personal contact details, e.g., their personal email address or telephone number when enrolling, during their doctoral programme, before graduation or when for instance becoming member of university's alumni association, such consent could be sought to be able to contact graduates in the future. If country-specific laws allow for the involvement of third parties and universities wish to pass on the doctorate graduates' contact data



to a third party that would carry out a career-tracking survey on their behalf, rather than contact their doctorate graduates directly, universities must have the prior consent from the graduates while also acting within the data protection regulations of the university.

- 4) Universities should strive to maintain a database of contact details of all doctorate graduates, including the information on their faculty and year of graduation (and possibly other characteristics), in a centralized manner at the university level or at the level of the alumni office.
- 5) It is important to regularly update the email addresses of the doctorate graduates with the help of Newsletters, engagement with alumni activities or other scientific events.
- 6) Personal data, including personal email addresses, need to be stored and used in compliance with legal and regulatory requirements.

Collecting no personal data (e.g., name, date of birth, thesis title) and minimal potential identifying data in the survey is advisable and is likely to increase response rates and to enable respondents to truthfully answer questions e.g., on satisfaction with their doctoral training programme. The disadvantage of fully anonymous surveys is that it is not possible to follow up the same respondents with follow-up surveys, if the goal is to track their career paths in the future.

If the survey is fully anonymous, it is recommendable, at the end of the survey, to ask respondents for a contact email and their agreement to be approached in view of future surveys.

## 6 Recommendations for career-tracking surveys

### 6.1 Objectives and methodological design

Each survey has its own objectives and characteristics and implicitly, it is addressed to a specific and targeted population and has an appropriate set of questions. The scope of the survey should be carefully considered, as well as the method and expected outcomes. One needs to take into consideration the available resources, including the budget and staff and expertise.

It has to be checked whether at national or regional level there exist surveys collecting similar data. Other universities and organizations also conduct similar studies, and it is important to research what is being available - there is no need to duplicate efforts collecting the same type of data or designing a new questionnaire where good examples exist elsewhere. The questionnaire provided in Annex A can be used as a template for institutional career-tracking surveys, to be adapted to the particularities of an individual institutional context and the target population.

As far as the type of survey of doctorate graduates to be conducted, universities can consider several options:

- cross-sectional retrospective studies that trace back careers over several years,
- cohort studies;
- longitudinal panel study;
- cross-sectional retrospective study composed of consecutive cohorts.

If the university already has available data/registers, it may influence the choice of the type of study and methodology.

Longitudinal surveys, where a sample of doctorate graduates is traced at several moments in time (e.g. at graduation, 1 and 3 or more years after graduation) allow dedicated questionnaires to be developed for the various stages; e.g., a questionnaire on satisfaction with doctoral training at graduation, questions on

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the entry into the labour market at 1 year after completing the doctorate, and questions on occupational career patterns at 3 or more years after completing the doctorate, etc.

The current template questionnaire is based on the DocEnhance survey targeting early-career doctorate graduates of up to 5 years after completion, and explores a range of topics such as first employment, current employment, type of contract, moves across sectors of employment and in and out research, added value of the doctorate, satisfaction with their doctoral training and employment, match between their degree and their job, skills match, job satisfaction, etc. Having a sample of doctorate graduates of e.g. up to 10-15 years of completion would provide richer data, including those with more career history. The choice of the timeframe in this case should be guided both by the goals and objectives of the career-tracking study and the availability of the contact database of the doctorate graduates.

The questionnaire topics can vary depending on the objectives for the survey and the target population. For instance, if your primary goal is to receive feedback on the doctoral training programme (satisfaction with training, supervision, etc.) then the survey population should mainly include early-career doctorate graduates. If such a study is conducted immediately after graduation (exit poll), it would be suitable to ask about the intentions for subsequent study or career aspiration (e.g., intended employment sector, type of job, involvement or not in research, etc.) If you are interested to study the broader impact of the doctoral degree on careers of the doctorate holders, also in later career stages, then it would be preferable to extend the target population to the doctorate graduates of up to 10-15 years after graduation, or to set-up a longitudinal study that would follow doctorate graduates for 10-15 years following graduation. In any case, it is advisable to keep the length of the questionnaire reasonable (e.g., questionnaire completion time should stay under 15-20 minutes), and topics focused on collecting data that is relevant to the study questions and objectives.

Keeping in mind that career-tracking surveys are labour- and cost-intensive, having several organizations take part in the study enables economies of scale and offers benefit in terms of exchange on e.g., the questionnaire design. Having several organizations use the same questionnaire also generates possibilities for cross-institutional benchmarking using the collected data.

Having the survey set up and carried out online rather than conducted by phone or using paper questionnaires for instance, has its advantage in terms of cost and time flexibility for the respondents.

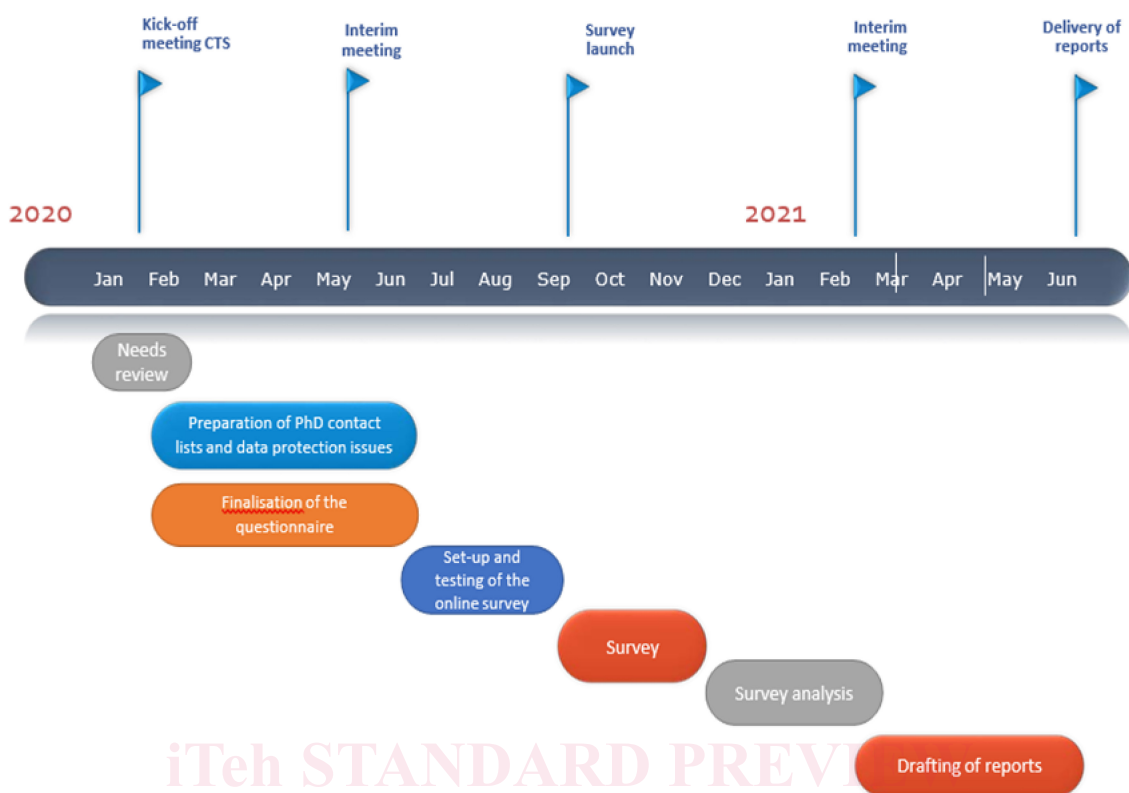
## **6.2 Survey feasibility and management**

To assess the feasibility of setting-up a career tracking survey, check if your university has a database of contacts of doctorate graduates, including their names, valid personal emails, year of graduation and possibly other details. Without available contact data, it would not be possible to conduct a survey. In this case, the first step would be to set up such a database, in compliance with GDPR.

Planning is key for a successful career-tracking survey : whether it is done as part of a coordinated effort with several organizations (as in the case of the DocEnhance survey) or as an institutional initiative, setting aside enough time and financial resources, and thoroughly planning for the various phases and professional project management are needed: e.g., questionnaire development and quality assurance, stakeholder relations (e.g. career services, IT, legal advisors, alumni officers, etc.), dealing with the GDPR aspects and preparing a data management plan, data cleaning and analysis, report preparation and dissemination. Having appropriate expertise (in-house or through consultancy) in survey design and statistical analysis and software as well as coordination and management are important.

In the framework of the EU-funded project, the timeline was agreed in advance and partners were informed of their involvement in each work package. From the needs assessment to the publication of the final report on the data findings, it took 18 months.

An example of the main steps of a survey is shown in Figure 1.



**Figure 1 — Example on a career-tracking survey timeline**

A career-tracking survey should include:

- 1) Study purpose definition and reviewing the needs of the participating organizations (if several organizations are involved);
- 2) Designing the questionnaire and coordination of partners', stakeholders' and experts' feedback collection;
- 3) Designing the survey protocol;
- 4) Setting up and testing the survey in an online platform;
- 5) Coordinating data collection;
- 6) Performing data cleaning and data analysis;
- 7) Preparation of the report with findings.

### 6.3 Sampling and response rates

The DocEnhance survey aimed to collect data from all doctorate holders in the target population and therefore used a census-like approach without any specific statistical sampling. This approach has an advantage of obtaining information from a larger number of respondents and the absence of statistical and technical issues related to sample selection.

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Having a good response rate is reportedly one of the biggest issues when it comes to career-tracking surveys of doctorate graduates.

To reach a good response rate, the following recommendations can be provided:

- 1) Provide good rationale for the survey so that respondents understand the importance of the study for the university in the survey introduction message.
- 2) Have the invitation message signed by a representative of the University (e.g., Graduate School) and build on the doctorate graduate's relationship with the university.
- 3) Provide up to 2-3 reminders, one or two weeks after survey launch.
- 4) Keep the survey open for a period of up to 4 weeks, have a final reminder before the survey closes to engage respondents and provide the possibility to start and continue filling out the survey later.
- 5) Provide clear indication of the time it will take to fill out the survey (15-20 minutes maximum).
- 6) Provide clear indication on the GDPR aspects (e.g., how personal data will be handled).
- 7) Offer incentives - e.g., offering to send out survey report to respondents.

**6.4 Questionnaire**

The DocEnhance questionnaire was developed by the European Science Foundation (ESF), the partner organisation responsible for the DocEnhance Career-tracking Survey and built on the questionnaire used in the ESF Career-tracking study conducted in 2017. The questionnaire was further developed to adapt to various career paths of the doctorate working in and outside the academia and to explore the aspects related to the skills training. The list of skills (both research and academic skills and groups of broader transferable skills) was enlarged and clustered based on results of the DocEnhance project activities (e.g., skills prioritisation workshops, brainstorming and group work at the project kick-off meeting) as well as relevant literature, i.e., the ESF Member Organizations Forum report "Research Careers in Europe – Landscapes and Horizons" (ESF, 2009 [8]) as well as the OECD survey "Careers of Doctorate Holders" (Auriol et al., 2013 [9]).

The questionnaire is in English and includes seven sections: 1) doctorate education, 2) skills and competencies, 3) transition from doctorate to the first or next employment, 4) employment situation and related career experience, 5) intersectoral mobility, 6) geographical mobility and 7) demographics.

Several early drafts of the questionnaire were reviewed by the representatives of the DocEnhance partner organizations. In addition, several international experts and representatives of stakeholder organizations (e.g., EUA-CDE, EURODOC, etc.) provided their valuable feedback on the questionnaire.

The online questionnaire included skip logic, and the number of questions varied from 30 to 62 questions depending on the profile of the respondent (employed/unemployed, researcher/non-researcher, etc.) The questionnaire took from 10 to 20 min to complete. Only a few of the questions were obligatory, to facilitate the collection of basic characteristics of respondents/profiling variables / for subsequent analysis.

The questionnaire is provided in Annex A, including all questions and answer options. Despite the length of the questionnaire (up to 68 questions depending on the skip logic), the survey completion rate was rather high, at 80%, indicating that the survey was generally well adapted in terms of content and size.

The questionnaire includes mainly closed questions with several answer options to choose from. The survey offered "other" as one option to ensure that all respondents could answer appropriately. In most cases, the proportion of respondents selecting "other" was small (less than 10 %), indicating that the