ASTP
A World of Knowledge Transfer

National Associations Advisory Committee

Knowledge and Technology Transfer Metrics Report

Data Report from ASTP National Associations Advisory Committee (NAAC) Working Group on KPI Metrics & Impact

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About NAAC

The National Associations Advisory Committee (NAAC) is one of ASTP's governing bodies, bringing together 35 National Associations from 28 countries. It serves as a vital link between European initiatives, regional Knowledge Transfer Offices (KTOs), and local innovation ecosystems.

By fostering collaboration across Europe, NAAC strengthens the European innovation system through knowledge exchange and synergy-building among national and regional stakeholders. It plays a pivotal role in shaping the future of knowledge transfer and innovation by:

- **EU representation – Advocating for knowledge transfer at the European level**
- **Knowledge exchange – Facilitating staff exchanges and case study sharing**
- **Regional capacity building – Supporting expertise development in knowledge transfer**
- **European surveys and impact measurement – Enhancing data-driven decision-making**
- **Professional development – Offering training and capacity-building programs**

Through these initiatives, NAAC enhances the efficiency and impact of knowledge transfer across Europe.

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[a]RedOTRI has recently changed its name to Red OTC. As the data in this report were collected under its former name, RedOTRI is used throughout for consistency.

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List of acronyms

ASTP	European Association of Knowledge Transfer Professionals
AU	Australia
AUTM	AUTM (formerly Association of University Technology Managers)
BE	Belgium
BG	Bulgaria
CE	Continuing Education
CPD	Continuing Professional Development and Training
CH	Switzerland
CZ	Czech Republic
DE	Germany
DK	Denmark
ES	Spain
FR	France
FTE	Full-time equivalent
HESA	Higher Education Statistics Agency (UK)
IE	Ireland
IKTA	Irish Knowledge Transfer Association
IP	Intellectual Property
IPR	Intellectual Property Rights
IT	Italy
KEF	Knowledge Exchange Framework
KPI	Key Performance Indicator
KT	Knowledge Transfer
KTO	Knowledge Transfer Office
KTT	Knowledge and Technology Transfer
LOA	Licences, Options, Assignments
LU	Luxembourg
MTA	Material Transfer Agreement
NDA	Non-disclosure Agreement
NZ	New Zealand
PACTT	Polish Network of Academic Technology Transfer Centres
PCT	Patent Cooperation Treaty
PL	Poland
PO	Patent Office
PRO	Public research organisation
R&D	Research & Development
RedOTRI	Network of the Oficina de Transferencia de los Resultados de la Investigación (Spain)
SATT	Société d'accélération du transfert de technologies (France)
SE	Sweden
SwiTT	Swiss Technology Transfer Association (Switzerland)
TR	Türkiye
UK	United Kingdom
US	United States
ZA	South Africa

1. Introduction

In high income countries all over the world higher education and research organisations have accepted knowledge and technology transfer (KTT) as part of a "third mission" in addition to their first and second missions of research and teaching (Secundo et al., 2017). Many emerging economies around the world have taken this as an example and followed the same path.

Due to its importance for innovation and societal prosperity, KTT has long attracted the attention of policymakers around the world. In Europe, the European Commission recommended principles for the management of intellectual property (IP) in knowledge transfer activities and a Code of Practice for universities and other public research organisations (European Commission, 2008) and, more recently, a Code of Practice on industry-academia co-creation for knowledge valorisation (European Commission, 2024). The multidimensional approach required to accelerate the potential uptake of R&I results and data has also led the EC to define knowledge valorisation channels (European Commission: Directorate-General for Research and Innovation, 2020). Knowledge valorisation describes the process of "creating social and economic value from knowledge by linking different areas and sectors and by transforming data, know-how and research results into sustainable products, services, solutions and knowledge-based policies that benefit society" (Council of the European Union, 2022).

European communications and initiatives for strengthening KTT as well as academic work have repeatedly stressed the importance of developing valid metrics. Expert groups have worked on measurement frameworks and indicators (Campbell et al., 2020; European Commission, Directorate-General for Research and Innovation, 2009) and the Code of Practice on knowledge valorisation included a set of recommendations on metrics for assessing outcomes, value created and impact of industry-academia co-creation activities (European Commission, 2024). Such contributions serve to overcome the risk of focusing on what is easily measurable and not what is important for providing a comprehensive picture of KTT (Arundel et al., 2021; Kreiling & Scanlan, 2020; Rossi & Rosli, 2015). Nevertheless, the currently available measuring instruments for research and innovation systems in Europe (Directorate-General for Research and Innovation, European Commission, 2025; Directorate-General for Research and Innovation, European Commission et al., 2024) and beyond (World Intellectual Property Organization (WIPO), 2024) do not yet satisfactorily reflect KTT. As the title of the working group suggests it aims at describing and developing key performance indicators (KPIs) of the knowledge and technology transfer (KTT) activities of European universities and public research organisations (PROs). This includes metrics and approaches used for measuring impact. The working group wants to contribute to establishing a harmonised set of metrics, definitions and methods which serve to monitor and manage the knowledge and technology transfer activities in Europe. This will be achieved by:

- Giving an overview of the current European landscape with regard to measuring KTT,

- **Discussing the pros and cons of the existing data collections and definitions and identifying good practice,**
- **Making recommendations on harmonised definitions of the key KTT concepts,**
- **Suggesting approaches for measuring impact,**
- **Raising awareness among KTT stakeholders of the different channels and the multiple influences on KTT success and impact that KTOs and their owners need to consider.**

The use of appropriate indicators is not a trivial matter, as previous analyses have shown that they signal what services and effects are expected by policymakers and funders, thereby influencing the actions and activities of scientific institutions (Rossi & Rosli, 2015).

2. Conceptual framework for knowledge transfer metrics

2.1. Knowledge and technology transfer of universities and PROs – structuring the topic

This section will first give an overview of existing measurement frameworks of KTT (and suggestions for the latter) and then suggest a synthesis that the WG uses for its own work. It focuses on work that conceptualised knowledge and technology transfer exchange in a wider sense, i.e. going beyond the commercialisation of research results, by means of including metrics which also cover transfers that relate to the research and teaching functions of higher education and research organisations. Moreover, it goes beyond the mere economic impacts of KTT and includes other areas of impact, e.g. environmental, social, etc.

Such a conceptual framework helps to structure the various factors influencing knowledge transfer and to take them into account when measuring it. It can also help those responsible for defining and managing knowledge transfer activities to select the most suitable strategies for their specific situation.

Existing KTT frameworks

The section looks at 6 different frameworks of knowledge and technology transfer metrics:

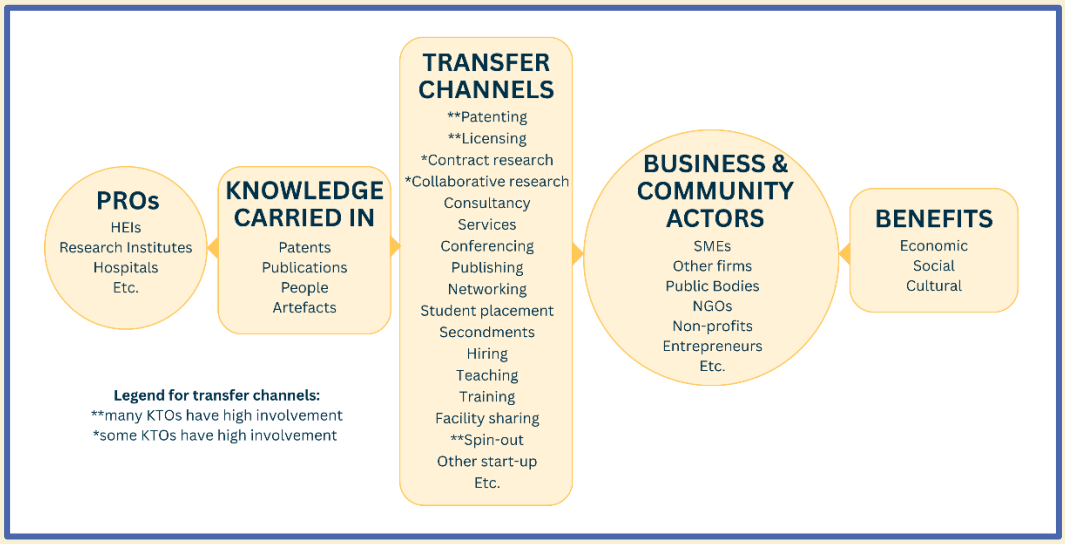
a) **European Commission's Expert Group on Metrics for Knowledge Transfer from Public Research Organisations in Europe**
b) **ERAC Working Group on Knowledge Transfer Indicators**
c) **University-Business Cooperation (UBC) framework**
d) **Knowledge Transfer Maturity Models**
e) **Knowledge Transfer Metrics**
f) **Knowledge Transfer Metrics II**

a) European Commission's Expert Group on Metrics for Knowledge Transfer from Public Research Organisations in Europe (European Commission, Directorate-General for Research and Innovation, 2009)

An EC expert group on KTT metrics distinguished knowledge carriers, transfer channels, recipients or non-academic actors involved in transfers and benefits of transfers (*Figure 1*). Of the four different knowledge carriers only studies on joint publishing and patenting activities seemed to capture the transfer dimension sufficiently. The measurement of transfers via people and artefacts were described as not well developed for structured comparisons, as was the measurement of KTT benefits. Surveys of the users of academic knowledge, above all companies, exist in many countries, for instance as part of innovation

surveys. However, they usually do not provide detailed data on KTT and by focusing on business enterprises they leave out a large part of the knowledge recipients.

Figure 1. Knowledge transfer from public research organisations (adapted from Directorate-General for Research and Innovation, 2009, p.10).



Source: European Commission, Directorate-General for Research and Innovation (2009, p. 10)

This left transfer channels as the main reference point for KTT metrics. Surveys of researchers were perceived as an appropriate but too costly way of obtaining data on the use of all transfer channels, and therefore the expert group suggested to focus on surveying KTOs and limiting the data on transfer channels in which KTOs will commonly be involved:

- Research agreements,
- Invention disclosures,
- Patent applications,
- Patent grants,
- Licences executed,
- License income earned,
- Spin-offs established.

Supplementary indicators were suggested on KTT involving SMEs, KTT involving domestic firms, KTT involving the research organisation's own region, exclusive licenses, share of valid patent portfolio that has ever been licensed, patent share of license income, technology areas for patenting. Moreover, basic data concerning the KTOs and PROs serves to normalise indicators:

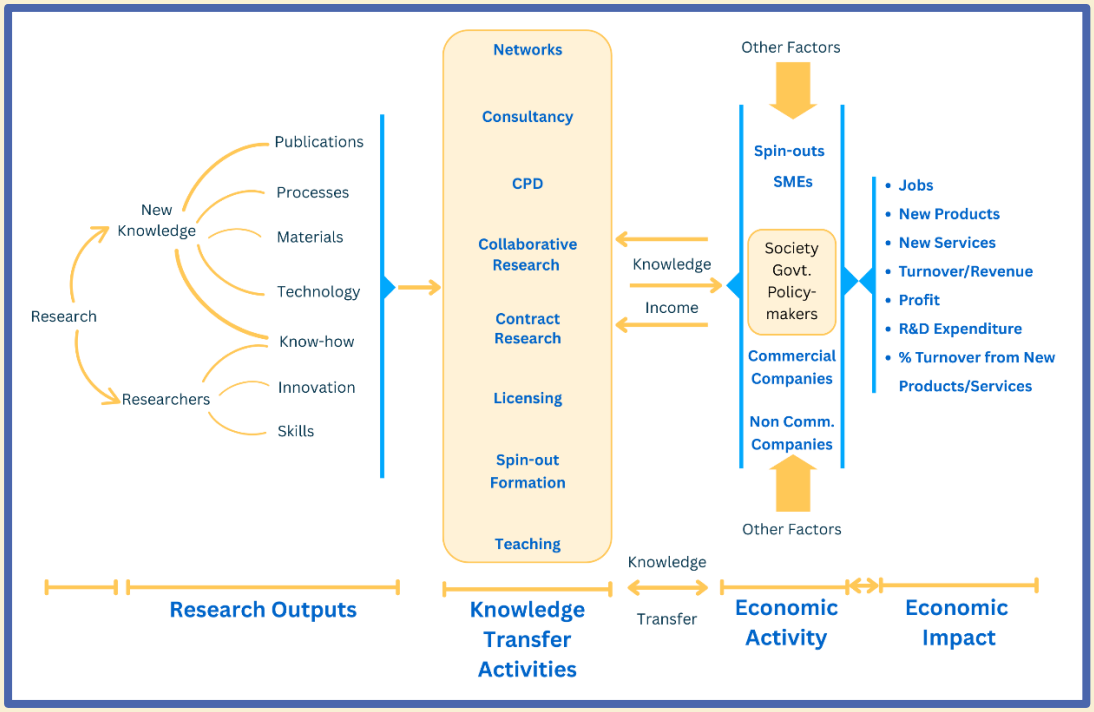
- Type(s) and number of affiliated PROs of the KTO,
- KTO size,
- Total KTO costs,
- Outsourcing of KTO services,
- Reference year for data collected,

- Research expenditure in the reference year,
- Research personnel in the reference year.

b) ERAC Working Group on Knowledge Transfer Indicators (Finne et al., 2011)

The European Research Area Committee (ERAC; then CREST) mandated in 2009 another working group to propose headline indicators for knowledge transfer and a composite indicator that covers its different dimensions. The 2011 report takes a broad view on knowledge transfer and uses the following *Figure 2* to illustrate its place in innovation ecosystems.

Figure 2. Model of knowledge transfer within the innovation ecosystem (adapted from Holi et al., 2008, p. 2, as cited in Finne at al., 2011, p. 10)



Source: Holi et al., 2008, p. 2, as cited in Finne et al. (2011, p. 10)

Simplifying somewhat, it was pointed out that KTT-related activities can be directed at providing input to KTT (e.g. generating knowledge through research), developing the throughput (e.g. making knowledge transferable, linking partners), and producing the output (e.g. use of knowledge). The expert group suggested four perspectives on KTT: 1) networks where knowledge travels, 2) transfer of knowledgeable people, 3) institutional co-operation in solving problems and opening opportunities, and 4) IP management to facilitate exploitation of research results (Finne et al., 2011, p. 11). Whereas it was perceived as impossible to identify indicators which would correctly represent the multiple formal and informal activities building and using networks between academics and industrialists to exchange knowledge (perspective 1), indicators were discussed and suggested for the three other perspectives (*Figure 3*).

Figure 3. Proposed component indicators for knowledge transfer (adapted from Finne et al., 2011, p. 4)

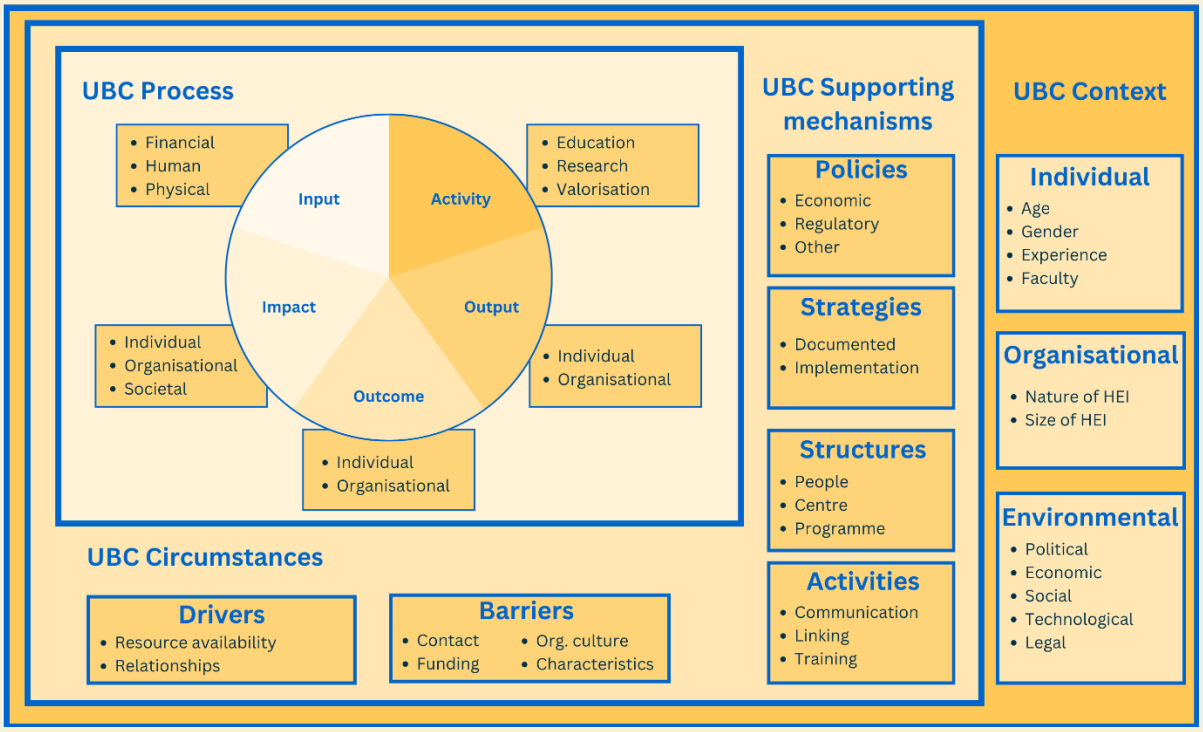
Knowledge transfer through trained people	Institutional co-operation in R&D and other phases of innovation	Commercialisation of research
1.1. Stock of HEI graduates employed in business enterprise sector 1.2 Stock of doctorate holders employed in business enterprise sector 1.3. Continuing professional development revenue for HEIs 1.4 Employed adults (age 25-64) engaged in university level training or education 1.5 Teaching in HEIs performed by people with their primary job outside the HEI/PRO sector 1.6. Entrepreneurship propensity among HEI students	2.1. Number of R&D contracts in HEIs/PROs with firms and other users 2.2. Number of consultancy contracts in HEIs/PROs with firms and other users 2.3. Revenue to HEIs/PROs from R&D contracts with firms and other users 2.4. Revenue to HEIs/PROs from consultancy contracts with firms and other users 2.5. Firms co-operating with HEIs 2.6. Firms co-operating with PROs 2.7. R&D in HEIs/PROs funded by business 2.8. Co-publications between private and public authors	3.1 Invention disclosures from HEI/PRO employees 3.2 Priority patent applications submitted from HEIs/PROs 3.3 Patent applications submitted from public sector actors to EPO 3.4. Patents granted to HEIs and PROs 3.5. New licensing agreements 3.6. Licensing revenue to HEIs and PROs 3.7. International licensing trade from HEIs and PROs 3.8. Number of new spin-offs

Source: Finne et al. (2011, p. 4)

c) University-Business Cooperation (UBC) framework (Galán-Muros & Davey, 2019)

Under the headline of university-business cooperation (UBC) Galán-Muros & Davey (2019) conducted a review of the literature and suggested a framework that included inputs, activities, outputs, outcomes, impacts, supporting mechanisms, circumstances and context. UBC was defined as "all types of direct and indirect collaborative interactions between HEIs [higher education institutions] and any public or private organisation for mutual benefit" (Galán-Muros & Davey, 2019, p. 1312). The definition actually went beyond business enterprises and included other types of organisations, but it also went beyond interactions aimed at exchanging knowledge and technology. This needs to be kept in mind here.

Figure 4. UBC ecosystem framework (adapted from Galán-Muros & Davey, 2019, p. 1330)



Source: Galán-Muros & Davey (2019, p. 1330)

Inputs, activities, outputs, outcomes, and impacts are depicted as the core elements of the UBC process. With regard to inputs the authors distinguished three types of resources that are needed for UBC: human resources in the university or PRO and at intermediary organisations to produce and exchange knowledge, financial resources, and physical resources, e.g. the materials, equipment or facilities that are utilised.

Activities they defined as "collaborative interactions and cooperative efforts to transfer or exchange knowledge, technology or other properties" (Galán-Muros & Davey, 2019, p. 1317). They stressed that all three missions, research, teaching and "valorisation" are employed for transferring or exchanging knowledge and they list joint curriculum design and delivery, lifelong learning, student mobility, professional mobility, collaborative R&D, commercialisation of R&D results, and entrepreneurship as distinct UBC activities.

UBC results are differentiated according to their directness and tangibility as outputs, outcomes and impacts. Outputs are tangible and measurable and result directly from the UBC activities; examples are publications, data, software, or prototypes. Outcomes result from the outputs and they can be indirect and intangible, e.g. new business opportunities, products or applications using research results, or increased skills and knowledge. The difference between output and outcome can be blurred. Impacts are described as indirect effects of UBC in the widest sense, from positive effects on universities' reputation to improved innovation capabilities in businesses or creation of new jobs and economic growth in the surrounding regions.

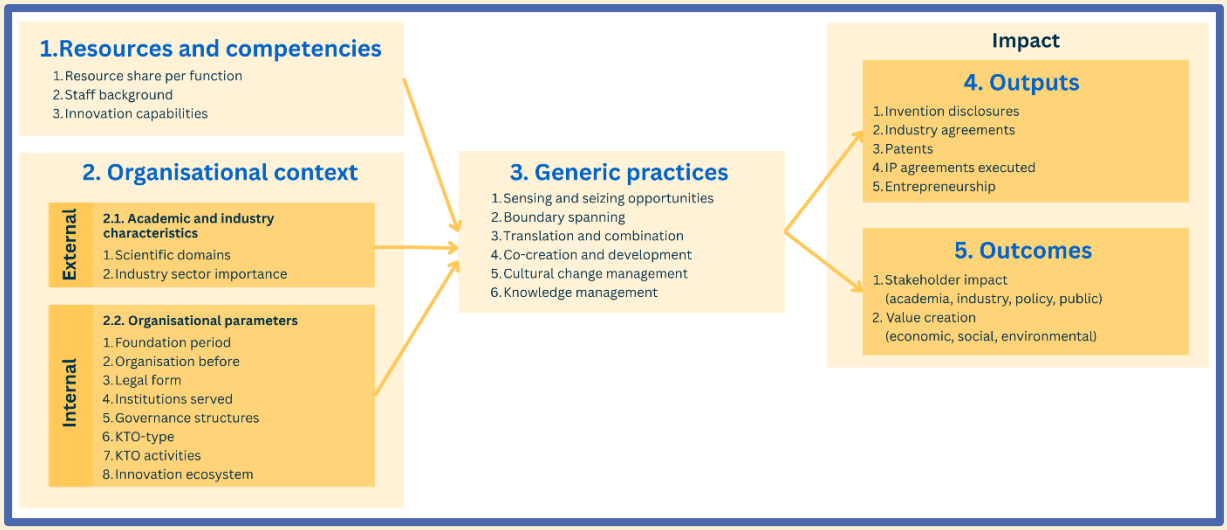
Galán-Muros & Davey (2019) differentiate the environment of UBC into three layers of supporting mechanisms, circumstances, and context. UBC supporting mechanisms are

measures to develop and administer UBC: a) policy mechanisms at any level regulating and incentivising UBC, such as funding programs, IP policies, or training programmes; b) strategic mechanisms, c) structural mechanisms such as the establishment of a dedicated KTO to implement institutional policies and strategies of UBC; d) operational mechanisms of communication, support, and knowledge-building. As UBC circumstances they describe the drivers and barriers of UBC, from awareness, culture, and funding to personal relationships and resources. UBC context includes the characteristics of the individuals, organisations, and environments or jurisdictions in which UBCs take place. Again, the distinction between supporting mechanisms, circumstances, and context does not appear as clearcut.

d) Knowledge Transfer Maturity Models (Kreiling & Bounfour, 2020; Kreiling & Scanlan, 2020; Scanlan, 2018)

A group of authors suggested maturity models, defining key processes and practices and different maturity levels of their execution. Scanlan (2018) included 1) tech transfer staff experience, 2) spin-outs/LOA activity, 3) industry engagement, 4) consultancy activity, 5) TT/KT culture, 6) IP management processes, and 7) transaction speed and quality as capabilities for which he then described five maturity levels. Kreiling & Bounfour (2020) suggested six generic practices of knowledge and technology transfer and used five maturity levels as well: 1) sensing and seizing opportunities, 2) boundary spanning, 3) translation and combination, 4) co-creation and development, 5) cultural change management, and 6) knowledge management. These practices depended on resources and competences made available for knowledge transfer and the environment in the higher education or research organisation as well as outside of it to produce knowledge transfer outputs (invention disclosures, industry agreements, patents, IP agreements executed and new firms) which generated further outcomes and value for the stakeholders (*Figure 5*). They distinguished four stakeholders (academia, industry, politics & administration, society) and listed a multitude of outcomes for each, mainly economic outcomes, but also social and environmental outcomes.

Figure 5. KTO maturity model (adapted from Kreiling & Bounfour, 2020, p. 1732)



Source: Kreiling & Bounfour (2020, p. 1732)

Taking a more hands-on approach to cluster KTOs Kreiling and Scanlan (2020) then focus on a few resource, context and output indicators to characterise and compare KTOs:

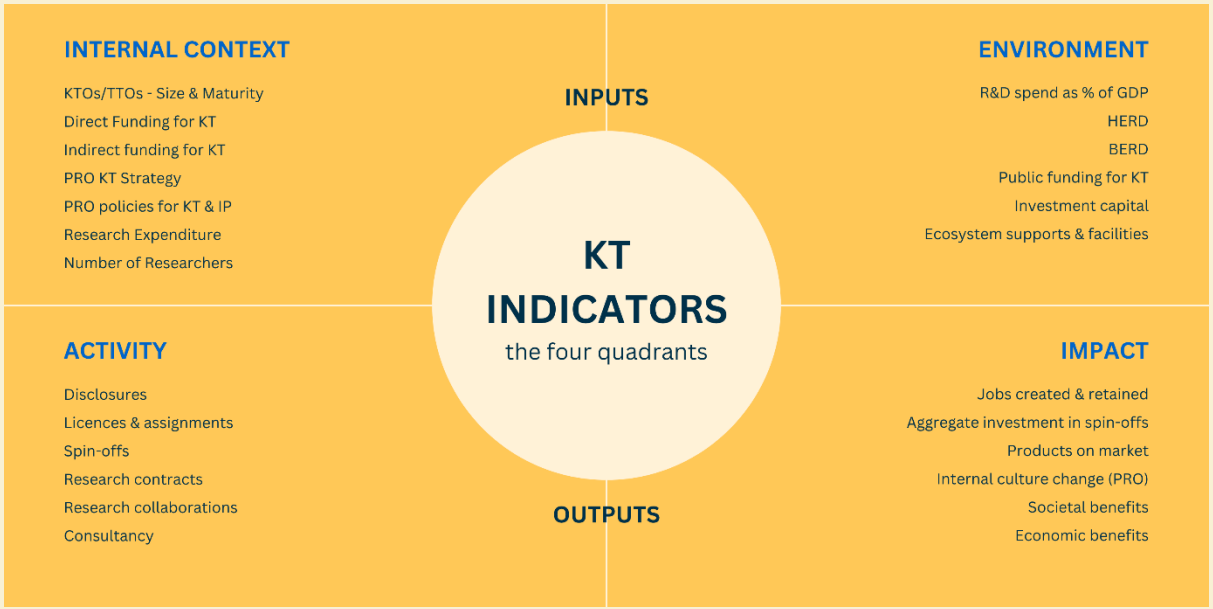
- **Age of the KTO (No. years existing)**
- **No. of PROs served by the KTO**
- **KTO full-time employees**
- **Gross expenditure of KTO (in EUR)**
- **IP protection cost (in EUR)**
- **Research expenditure (in EUR)**
- **PRO full-time employees**
- **No. industry agreements**
- **Income from industry agreements (in EUR)**
- **No. invention disclosures**
- **No. priority patents**
- **No. patents granted**
- **No. active patent families**
- **Total no. licenses, options, assignments**
- **No. software licenses**
- **Revenues from IP commercialisation (in EUR)**
- **No. start-ups**
- **No. spin-offs**

e) Knowledge Transfer Metrics (Campbell et al., 2020)

A more recent EU-led approach to defining a Europe-wide set of harmonised metrics was coordinated by the Competence Centre on Technology Transfer of the Joint Research Centre of the European Commission and written with the contribution of ASTP (Campbell et al., 2020). The report differentiated between KTT input and output indicators and suggested

to measure the internal context and environment of KTT, as well as the activities and impacts (*Figure 6*). *Figure 6* shows the core indicators which are enhanced by a large number of supplementary indicators.

Figure 6. KTT input and output indicators (adapted from Campbell et al., 2020, p. 17)



Source: Campbell et al. (2020, p. 17)

The report lists a large number of indicators for each of the four quadrants (see Appendix table 1, p. 65) on the detailed list from the source. The internal context indicators included a set of nominal variables, e.g. whether the university or PRO has formulated policies for KTT and handling its intellectual property or not ("PRO policies for KT & IP"). The total research expenditure and the age of the knowledge transfer office (KTO) in years were also taken into account.

Environment indicators reflect on the external environment of universities and PROs and predominantly the funding of activities that relate to the production and commercialisation of knowledge.

The KTT activity indicators cover the mechanisms of KTT, from the involvement of universities and PROs in the production of knowledge (by means of collaborative R&D, contract research, or consulting provided to non-academic third parties) to the commercialisation of research results generated by universities and PROs. The commercialisation indicators refer to supply and demand-related measures of the commercialisation of intellectual property and include invention disclosures, licences & assignments (number and revenue) and spin-offs (number and revenues from equity sales). Patent applications and patents granted were only included as supplementary indicators, as they were perceived as an "artificial measure of activity" (Campbell et al., 2020, p. 24) that depends on the patenting capacity (including budget) and capability of an organisation. Licences and assignments are perceived as the more meaningful measures.

Last but not least, impact indicators relate to societal and economic impacts that can be influenced by the university/PRO. Impacts can be more easily quantifiable, like new employment and investment in spin-offs, or more challenging to quantify, like cultural change in the university or PRO itself and wider societal or economic benefits. Above all for monitoring the latter Campbell et al. (2020) suggest the writing of evidence-based case studies.

A second report from the EC-JRC WG focused on the development and diffusion of composite indicator(s) and an associated scoreboard and concluded that "further progress […] needs to be made within the PRO sector, before these can be meaningfully implemented" (Campbell et al., 2022, p. 3).

f) Knowledge Transfer Metrics II (Arundel, 2016; Arundel et al., 2021)

Another approach to developing metrics for knowledge transfer was carried out in the context of WIPO. Arundel (2016) suggested seven basic metrics for KTO surveys:

- Number of invention disclosures,
- Number of patent applications,
- Number of patents granted,
- Number of research agreements,
- Number of licenses executed,
- Number of start-ups (including both spin-offs established by staff using IP and other new companies that take a license to commercialise IP but do not include staff),
- Total license revenue earned.

He also added several supplementary indicators for patents, licensing, revenues, and start-ups, as well as two metrics for standardising the KTO metrics: Total number of academic staff at a PRO active in fields with a potential for commercialisation and total research expenditures in fields with a potential for commercialisation.

In a later, more comprehensive publication Arundel and Es-Sadki (2021) added further metrics to these mainly IP and research-based metrics arguing that otherwise the picture of the KTT performance of higher education and research organisations would be incomplete which could create a disadvantage for certain universities and negatively affect KTT, if certain channels are not used, because "they do not count". So, they argued it is desirable to "support the full range of knowledge transfer channels, based on evidence showing that the optimal channel varies by firm capabilities and the characteristics of the knowledge to be transferred" (Arundel & Es-Sadki, 2021, p. 428).

Accordingly, additional data from KTOs and university/PRO administrations should relate to:

- Benefits and costs of knowledge transfer activities for the university or research organisation,

- **Policies and practices used to support KTT, e.g. rules relating to incentives, the publication of results, (temporary) leaves of absence for working in spin-offs, or goals pursued by KTOs with KTT (see on their suggestion).**

Data from internal faculty and researcher surveys at universities and research organisations would have to cover the topic of academic engagement, defined by Perkmann et al. (2013, p. 424) as "knowledge-related collaboration by academic researchers with non-academic organisations". Drawing on Perkmann et al. (2013) Arundel and Es-Sadki (2021) point out that certain relevant characteristics of academics, perceptions of the organisational and institutional environments, and, last but not least, outputs and outcomes or KTT can only be assessed by talking to the involved academics (or their corporate and non-academic partners).

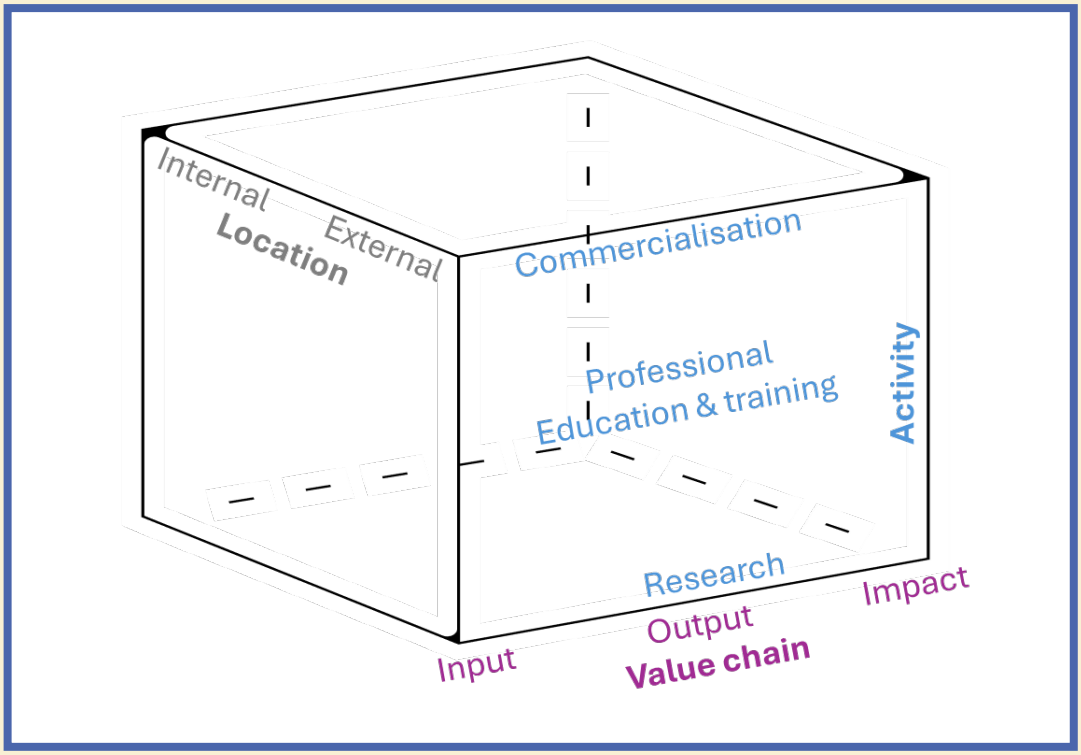
A synthesis for this report

The risk is considerable that a system of KTT metrics focuses on what is easily measurable and not what it is important for providing a comprehensive picture of KTT. The previous work on knowledge and technology transfer frameworks has stressed four different dimensions of which three refer to what is measured and the fourth to where or from whom the information is obtained:

1) **Activity dimension**
2) **Value chain dimension**
3) **Location dimension**
4) **Level dimension**

The three content dimensions of KTT metrics can be pictured in the form of a KTT metrics cube (*Figure 7*).

Figure 7. KTT metrics cube



Source: Barjak, F., 2025.

The *activity dimension* (blue) describes through which mission or activity of a university or public research organisation knowledge is being generated and exchanged with users outside academia. These activities can belong either to research (e.g. collaborative research & development, contract research), professional education, training and teaching (e.g. courses for executives, student projects for companies) or the commercialisation of knowledge (e.g. licensing of patents or other IP rights, formation of spin-offs).

The *value chain dimension* (purple) distinguishes inputs from outputs and impacts of KTT. Whereas inputs cover the human, financial and other resources needed for generating transferable knowledge (e.g. research expenditure) and support services for facilitating the transfers (e.g. KTO staff and budget), the output dimension reflects what others have labelled "activities" or "channels" namely the knowledge items generated for transfers (e.g. a patent, license, continuous professional development offer, etc.). Impact then relates to the effects in economic, social, cultural, environmental or other (including scientific!) regards generated by the transferred knowledge, such as employment and sales in a spin-off company, better solutions of societal problems due to policy improvements, or to pick one potential negative impact of patenting, a delayed publication of new scientific findings.

Above all for inputs and impacts (less so for outputs) the third *dimension of internal and external location* (grey) in relation to the university/PRO is also highly relevant: for instance, internal financial resources of the KTO will be an important influence on its ability to support the protection of property rights, but the technology-intensity of the surrounding region or country and its interest in licensing-in university/PRO inventions will be an important external influence on whether the commercialisation of IP via licensing is a productive

mechanism to transfer technology (Barjak & Es-Sadki, 2016). Whether something is perceived as internal or external should depend on by whom the decision about its creation or production is made: internal refers to decisions made by the university/PRO or its organisational sub-units and faculty, external refers to decisions made by organisations over which the university/PRO has no or limited control, e.g. companies or students. The examples show that it is not always easy to determine whether something is external or internal and both, internal and external decisions, might be necessary to generate a knowledge transfer, for instance in research contracts with companies. However, whenever the university/PRO would be in a position to agree or disagree on the emergence of a construct, we would classify it as internal.

In sum, we might have to distinguish 18 (2x3x3) different groups of metrics to fully represent the conditions for, practices and impacts of KTT. Clearly, it will demand a lot from any KTT metrics system and nowadays be impossible to fully represent all these cells properly for measuring KTT. Above all, as the data sources also are diverse. Arundel & Es-Sadki (2021), among others, have pointed out that one possible source for collecting data are universities' knowledge transfer offices which are commonly the contact points for all questions regarding KTT. Another obvious "suspect" for data provision are university/PRO administrations, for instance with regard to research expenditures or research personnel. However, KTOs and university/PRO administrations will usually not have any detailed information on how often or how intensively faculty use informal transfer mechanisms and participate in events or meetings with non-academic knowledge recipients, how often students conduct project work for companies, or how many consultancy projects with companies a faculty member has accepted in any given year (unless there is a rule for reporting this information to the KTO). Likewise, they will not collect data on the external environment and specifically the research or technology intensity of the economy. Hence, any KTT metrics system that aims to draw a comprehensive picture will have to go beyond the KTO and require additional efforts of collecting or compiling primary and secondary data from further sources. Today we are still at a starting point of such efforts where some countries advance more quickly than others. For example, the Knowledge Exchange Framework (KEF) established by Research England (2023) goes beyond the traditional concepts and metrics.

A comparable and very similar proposal was made in April 2025 by Sean Fielding on LinkedIn. He distinguishes between inputs (what is needed to make things happen), KT activity (activities undertaken to transfer knowledge), KT outputs (direct properties arising), outcomes (direct benefits created) and impacts (longer-term changes in organisations or society). In addition to these metrics for knowledge transfer the (external) environment for knowledge exchange, on the one hand the environment in the university or PRO and on the other hand the wider regional and national context also matter (see here).

3. Indicators by country

According to the Knowledge Transfer Cube, indicators for measuring knowledge exchange activities of universities and public research organisations (PRO) can be differentiated in three dimensions:

1. Whether the indicator or metric measures a characteristic (property, activity) of the university/PRO itself (internal univ./PRO), the KTO (internal KTO) or whether it measures an organisation, a characteristic or activity outside the university/PRO/KTO (external).

2. Whether it relates to something that is used as an input to the transfer of knowledge, represents the interaction of that exchange (output or activity) or generates an impact after the knowledge exchange.

3. A third criterion relates to the mission in the university or PRO to which an indicator can be connected, distinguishing between teaching, research, and commercialisation/third mission as three separate missions.

The indicators currently used in national knowledge transfer surveys are grouped and classified according to these dimensions in the following Table 1. In summary, the following patterns can be identified in the national data collections.

While there is a strong focus on output measures, both input and impact measures are comparatively scarce. The existing input measures are generally related to the internal inputs, i.e. the personnel and/or expenditures of the universities and research institutions for R&D and/or the resources of the KTO. Existing impact measures are related to the external economic impact generated by IP/spin-off companies as a follow-on measure to the number of such new firms that have been created by the academic sector (and are still operating). External inputs to knowledge exchange, like business R&D expenditures, demand for academic graduates or for university/PRO inventions by the corporate sector, are generally not collected. Likewise, measures for the internal impact of knowledge exchange activities, e.g. on the research budget, publications or staff/student recruitment, are commonly not available.

Though most indicators focus on internal output, indicators for teaching and research-related outputs are still scarce. Measures for knowledge exchange related to the teaching mission are an exception; only in few countries numbers on industrial PhD students have been collected and even scarcer are education offers for third parties, i.e. for persons not enrolled in regular Bachelor, Master or doctoral programs. Indicators that capture the frequency of research agreements with collaboration with and/or funds from non-academic organisations as well as the revenues resulting from such agreements are a standard measure to represent the knowledge exchange taking place via research.

Commercialisation indicators are the most common type of indicators. Most countries collect the numbers of invention disclosures, patent applications, Intellectual Property (IP) agreements (licences, options, assignments) and the revenues resulting from IP agreements. Consulting agreements are also often collected and several countries also

collect the revenues from consulting. Only in few cases applications for other Intellectual Property Rights (IPR) or portfolios of other IPR than patents are measured.

Table 1: Overview of indicators used by country

	ASTP	BE	BG	CH	CZ	DE	DK	ES[a]	FR (SATT)	IE	IT	LU	PL	SE	TR	UK	AU/ NZ	US	ZA
Internal input																			
KTO resources	X			X	X		X	X/X		X	X		X	X		X	X	X	X
PRO total research efforts	X	X			X	X		X/X		X	X		X		X		X	X	X
External input																			
External transfer/commercialization resources					X				X										
Internal output																			
Research agreements for KT	X	X	X	X	X	X	X	X/X		X	X		X		X	X			
Revenue from KT research agreements	X	X		X	X	X		X/X		X	X		X		X	X			
Industrial PhD students			X					-/X				X		X	X				
Continuing education or professional development											X			X		X			
Invention disclosures	X	X		X	X		X	X/X	X	X	X		X	X		X	X	X	X
Patent applications	X	X	X	X	X	X	X	X/X	X	X	X	X	X	X	X	X	X	X	X
Other IP applications			X		X			X/X	X		X		X		X		X	X	X
New patents granted	X	X	X				X	X/X		X	X		X		X	X		X	X
Active patents/families	X		X	X			X	X/X	X	X	X		X		X	X	X		X
Licensed patents/families	X			X				X/X	X		X						X		
New IP agreements (licences, options, assignments LOAs)	X	X		X	X	X	X	X/X	X	X	X		X		X		X		X
Active IP agreements/LOAs				X			X	X/X			X		X			X	X	X	
Revenue from IP	X	X	X		X	X	X	X/X	X		X		X			X		X	X
Consulting or service agreements	X		X	X	X	X		X/X		X	X		X			X			
Revenue from services or consulting	X	X			X	X		X/X	X		X		X			X			
Innovation projects									X		X			X					
External output																			
New spin-offs	X	X	X	X	X	X	X	X/X	X	X	X		X	X	X	X	X	X	X
Active spin-offs	X	X						X/X		X	X	X	X		X	X	X	X	X
Start-ups	X		X	X	X	X		X/-		X	X		X	X		X			
Student start-ups								X/-							X	X			

	ASTP	BE	BG	CH	CZ	DE	DK	ES[a]	FR (SATT)	IE	IT	LU	PL	SE	TR	UK	AU/ NZ	US	ZA
Internal impact																			
Other			X					X/-							X?				
External impact																			
Innovations (drawing on licenses)				X						X								X	X
Spin-off value/activity	X		X		X			X/-	X	X	X		X	X	X	X			X
Stud. start-up value/act.											X				X	X			
Other					X			X								X			
Source table is on page:	73	74	75	77	78	79	80	81	85	86	88	91	92	95	96	97	100	101	103

[a] Indicators from the RedOTRI/SICTI surveys.

See on detailed lists of indicators the tables in the appendix.

4. Definitions

The following section discusses the various definitions of key indicators in national surveys of universities and research institutions on knowledge and technology transfer. This is a prerequisite for harmonising the indicators in the future and ensuring that similarly designated measures do not differ in terms of content, scope and timing.

The sequence of sections is based on the dimensions of input (4.1 KTO resources, 4.2 research efforts), output (4.3-4.8) and impact (4.9).

4.1. KTO resources

An important section is most data collections on knowledge and technology transfer activities are questions on the services units inside the organisations – and in some countries also external – which are often called knowledge transfer offices (KTOs) or similar.

The surveys collect data on one or more of five different types of indicators:

1) KTO form
2) KTO age
3) KTO staff
4) Budget of the KTO
5) Service portfolios of the KTO

Ad 1) KTO form. Information on the form of the KTO is collected in six countries. In most cases this is a question on the existence of a dedicated service unit, an office or an individual, for KTT: Bulgaria, Switzerland, Czech Republic, Italy, Sweden, and South Africa.

Ad 2) KTO age. Eight countries included in this overview collect information on the age of the KTO (ASTP, Ireland, Italy) or, alternatively, the start of the KTT programs in the organisations (Sweden, Switzerland, South Africa and the US). The question wordings in the surveys in South Africa and the US are most specific, as both ask for the calendar year in which for the first time 0.5 or more FTEs were used for the KTT function. The US AUTM survey explicitly points out that this may not necessarily be the year in which a KTO was established.

Ad 3) KTO staff is the most widely collected information on KTO resources. Eleven of the 19 surveys/countries that are discussed in this report collect corresponding data. All surveys ask for full-time equivalents (FTEs) and most specify that only internal employees of the organisation or even the KTO itself should be counted. The Swiss survey also excludes staff with less than 20% of workload in KTT and additional people outside the KTO but inside the institution which work in knowledge transfer activities (e.g. project managers in larger research projects). The wording in the Czech Republic is more open as it asks for staff in

the system that supports innovation, knowledge valorisation and entrepreneurship and the Italian surveys include "collaborators" in addition to staff members without fulling explaining their status. The surveys in France, Switzerland, and the US distinguish between staff that provides knowledge and technology transfer services and supporting/other staff. While in four surveys the staff questions ask for data at the end of the year (ASTP, CH, DK, SE), the date is left open in the other surveys giving the respondents the liberty to select a date (or calculate an annual average).

Ad 4) Budget of the KTO and/or expenditures for certain activities. Monetary information on KTO expenditures is also collected in nine of the surveys included here: ASTP, Denmark, France, Italy (PROs indicate the Netval and Research Hospitals surveys collectively), Poland, Spain, Switzerland, the UK, and South Africa.

Most countries collecting such information request the *IP-related expenditures*: ASTP asks for all internal and external costs related to IP protection, except for the salaries of the KTO staff engaged in these activities and public co-funding. The Swiss survey also asks for all external costs, patenting cost and external legal fees, spent by the KTO/the connected institution(s), but it does not explicitly request that funding obtained from other sources be left out. The Spanish RedOTRI survey asks for patent registration and maintenance costs by licensee and by source. The Higher Education Business and Community Interaction survey in the UK also asks for IP costs. It explicitly includes salaries and related costs of specialist IP staff. The Italian surveys request the costs for IP protection (external legal fees, patenting costs and consultancy) incurred by the KTO, as well as the share covered by the licensees and by university/PRO subsidies and own funds. Last but not least, the South African survey distinguishes IP expenditures, litigation expenditures, and expenditures for KTO operations.

KTO budgets are measured in two surveys: The French SATT survey collects all expenses and charges related to its service activities (including incubation for SATT who provide this activity), and the Italian PROs surveys request the KTOs' annual budget totals.

The survey in Denmark asks for operating expenses of the institution for technology transfer (excluding salaries). It includes gross expenses for evaluation, rights protection, commercialisation, and use of consultants in connection with technology transfer and excludes:

- The institution's internal costs for the operation of technology transfer work, such as salaries, other personnel costs, office maintenance, and general travel (overhead).
- Payment for the use of personnel employed by other institutions covered by the Researcher Patent Act – e.g., if a hospital is serviced by personnel from the technology transfer unit at a university.
- The institution's payment of remuneration to inventors according to § 12, subsection 1 of the Researcher Patent Act.
- The institution's purchase or employment of technical and scientific staff for the development or maturation of inventions.

The financial information can certainly not be compared between countries at the moment either, above all because of the differing scope of the services that are covered and the different treatment of personnel expenses.

Ad 5) Service portfolios of the KTOs **are assessed in two different ways. While the ASTP survey, SATT survey in France, PROs surveys in Italy and RedOTRI survey in Spain ask for FTEs, the Swiss and Swedish surveys ask simple yes/no questions. The services considered and the wording vary considerably (see Table 2).**

Table 2: Overview of KTO services assessed by the surveys

	ASTP	CH	ES (RedOTRI)	FR (SATT)	IT (PROs)
Measure	% of FTEs	Yes/No and FTEs	% of FTEs	% of FTEs	% of FTEs
Services covered	• Research Support • Commercialisation Entrepreneurship support • Business development • Others	Yes/no question on the following services: • Research contracts • Evaluation, protection and management of IP • Commercialisation of IP • Support and/or coaching of start-up projects • Financial administration of research projects FTEs: • Technology transfer activities • Administration and general management	• Knowledge transfer management • Protection of industrial and intellectual property • Contracts with companies and other entities (art. 83 LOMLOU) • R&D programmes for collaboration with companies and other entities • Patent, know-how and software licences • Creation of companies • Financial management in knowledge transfer • Dissemination, promotion and marketing • Administrative support in transfer • Research management • Public aid, projects, infrastructure, grants and any other public funding except for collaboration with companies • Management of own research and transfer programmes	• Maturation/transfer • Service • Support functions • Incubation	• intellectual property protection • research and consult. contracts • licensing • spin-offs / start-ups • other tasks (e.g. management, finance, training etc.) • Public Engagement • youth entrepr. training prog. • drafting and mana-ging innovation/TT projects • organising promotion events • spin-off/start-up incubation • scouting results from research • business relations • training activities • other

			• Financial management of research • Administrative support in research management • Collection and analysis of information on research and transfer • Other functions		

4.2.Research efforts of the university/PRO

Another group of indicators is used in particular to normalise transfer data, i.e. to calculate ratios or other indicators that take into account the size of the higher education institution or research organisation. As a rule, the focus here is on measures related to research and development. This is measured in three ways:

1) ***Personnel*, i.e. by surveying the number of people working in research and development (R&D),**
2) ***Monetary*, by means of research or R&D expenditure,**
3) ***Publication output*.**

Ad 1) *Personnel data* is collected in the ASTP survey and in four countries (Czech Republic, Germany, Italy, and Spain). All countries measure full-time equivalents.

The ASTP survey asks for the time spent by academic staff on research and explicitly requests that teaching is excluded. It asks for total research effort in the financial year. The Spanish RedOTRI survey asks for research staff FTEs in the year, number of active researchers in transfer and the number of active researchers in research and provides a breakdown by researcher, technicians or similar, and other support staff. The Czech survey refers to R&D personnel, provides a brief definition and refers to the OECD Frascati Manual. The German survey collects the total of academic staff at the end of the financial year and the Italian (Netval) survey collects the number of contract workers, research fellows and other professionals engaged in research activities (FTE).

Definitions and time frames vary and only the Czech Republic survey refers to the OECD-wide standard definition of R&D personnel laid down in the Frascati Manual (OECD, 2015). In this document, the OECD provides definitions for three personnel groups with different functions in R&D (researchers, technicians and other supporting staff) and suggests a stepwise approach to measurement (ibid., chapter 5). For comparison purposes with other surveys, it would be desirable to follow the OECD approach in knowledge transfer surveys.

***Ad 2) Research/R&D expenditure*. Data on research-related expenditures is collected in eight different surveys, and each survey uses its own definition.**

- **The ASTP survey collects aggregate research expenditures in the calendar year of the survey, including the share of academic costs dedicated to research (e.g. salary costs of permanent academic staff, costs of administrative support, capital expenditures on new equipment) and excluding the cost of new buildings or land.**
- **The Spanish survey asks for total expenditure on R&D with a breakdown by source of funding: a) public funding programmes, b) contracted research, collaborative research, consultancy and technical services, c) private donations and grants, and d) general university/public research organisation funds.**
- **The Irish survey collects research expenditures excluding block grants and capital expenditure: the total, and expenditures derived from industry and from non-**

commercial entities. Similarly, in Poland the survey simply asks for research expenditures of the university/PRO excluding land and buildings.

- The PROs surveys in Italy ask for public and private research funding and include a breakdown by source: funds from the central government (MUR, etc.), region, European Union, contracts for research and consultancy financed by third parties and technical services, university/institution's own funds, donations, and other.
- In Luxembourg the survey requests data on national competitive funding, international competitive funding, and collaborative funding.
- The South African survey collects the expenditure incurred in performing research and development (R&D) activities irrespective of the funding source. Moreover, it contains a separate question on clinical trials expenditures.
- The AUTM survey requests total research expenditures and data on research expenditures covered by two funding sources, the federal government and industry. A separate question in the AUTM survey covers research expenditures for clinical trials.

Here too, the heterogeneity in the resulting data is evident. It arises from the lack of a standard definition for R&D, e.g. the OECD proposal in accordance with the Frascati Manual (Chapter 4 in OECD, 2015), from the financing sources taken into account, the inclusion or exclusion of capital expenditure, and the handling of expenditure on clinical trials.

Ad 3) Publication output. The surveys in Luxembourg and Türkiye as well as the Flemish Industrial Research Funds data collection also request information on scientific publications. While the Turkish data covers simply the number of publications in ISI-indexed journals, the survey in Luxembourg requests more elaborate publication data and the Belgian IOF uses moving averages of publication and citation data.

While publication data up to our knowledge has not been used for normalising knowledge transfer data, indicators drawing on personnel or expenditures are very common. For international comparisons neither seems to be adequate as of now, since no harmonised definition of researchers or R&D personnel respectively research/R&D expenditures has been established.

4.3. Research (collaborative R&D, contracted R&D etc.) and service/consultancy agreements with non-academic partners

Generally, the surveys collect the numbers and revenues from different types of contracts with industry or other non-academic clients. Two types of contracts are commonly considered under the headline of research (and development) agreements: agreements for collaborative research and for contract research (see Appendix table 24, p. 108 on definitions and questions). A third contract type is usually labelled service or consultancy contract.

The distinction between these contract types is commonly based on several of the following five criteria:

1) what activities are covered by the contract, above all research and development or (non-R&D) service activities,
2) who formulates the contractual objectives,
3) who conducts the research/service,
4) who funds the research/service,
5) who owns the results, and therefore also decides how to use (e.g. publish) them.

Research contracts

Two types of agreements which govern research (and development) activities are usually distinguished:

1) In *collaborative research and development,* the academic and non-academic partner jointly formulate the objectives, collaborate in the research, and own the results jointly, or, alternatively, each party owns the results that it produces. Finally, both are allowed to publish (jointly) the results. The funding can come from different sources, the academic institution, the non-academic collaboration partner and/or third-party research sponsors.
2) In *contract research* a non-academic client formulates the research objectives which are then pursued and implemented by the academic partner as provider of research services. The client owns the results and determines how the results can be used, e.g. whether they can be published or not. The funding is provided by the client and third-party research sponsors are commonly not involved.

This distinction between collaborative and contract research is included in the European Commission's communication on State Aid for Research and Development and Innovation (Communication from the Commission Framework for State Aid for Research and Development and Innovation 2022/C 414/01, 2022) to clarify under what conditions such contracts classify as State aid (see Appendix table).

Out of the analysed 19 surveys only seven account for collaborative research, contract research and consulting and other services separately: ASTP and the surveys in Belgium (Walloon Region), Ireland, Italy, Poland, Spain, and the UK (see Table 3). The Spanish survey distinguishes collaborative and non-collaborative projects. The Danish, German and Swiss surveys do not differentiate between collaborative and contract research agreements and only ask for the sum of both types. While the Swiss survey covers agreements with industry (large and small firms) and public partners, the wording in Germany is limited to industry. The Danish survey includes among research collaboration agreements 1) collaboration agreements on co-financed research, including in-kind financing, 2) agreements on commercial income-covered activities (commissioned research), clinical agreements, Ph.D. and postdoc agreements (co-financed and industrial), and Material Transfer Agreements. It excludes sponsorship agreements without any specific consideration, consultancy agreements (where the agreement is not between the institution, but students or employees, and a company), agreements on the completion or extension of existing

research projects, agreements on students' projects and internships, and grants and funding.

The wording in the Irish and Italian surveys is narrower as well and does not refer to non-academic parties but only to *industry*, excluding collaborative research agreements with public sector or non-profit organisations. Partner type is therefore another (non-definitory) criterion that should be mentioned in a standard definition of research agreements. For instance, the Bulgarian survey does not distinguish the type of contract, but whether contracts are with public or private partners (similar in the Danish survey) and whether these partners are national or international.

Furthermore, in Ireland the distinction is not between collaborative and contract research, but between wholly and part-funded collaborative research. Wholly industry-funded research would be equal to contract research for industry in our understanding. The Irish definition requests a financial contribution from industry even in collaborative research (in-kind contributions are possible in both types). In sum, with regard to criterion 4) and the included partners the scope of the Irish definition is narrower than that of ASTP, Spain and the UK.

With regard to the understanding of research and related activities that should be included in the counting of research agreements (1st criterion), only some surveys provide explicit definitions. A point of reference could be the definition of the OECD Frascati Manual, which defined research and experimental development for R&D and innovation surveys:

> *"Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications." (OECD, 2015, p. 18)*

None of the surveys refers explicitly to this OECD definition of R&D. The ASTP survey specifies that contract research uses existing knowledge, know-how, materials, equipment and other resources of the organisation, but it does not include a contractual purpose or objective (such as generating new knowledge) in its definition. The ASTP definition of collaborative research focuses on outlining the collaborative element only.

According to the Irish definition, the purpose of collaborative research is the generation of new knowledge. The German definition specifies that the purpose of the contracts should be knowledge and technology transfer, but it does not define research and development. Agreements that do not relate to R&D, but rather to the governance of data handling, materials, property rights, etc., are explicitly excluded. Non-disclosure agreements (NDAs), material transfer agreements (MTAs) and IP-related agreements are also explicitly excluded from the data collections in Germany, Switzerland, and France; in the Polish survey and in the Italian surveys, they are covered by separate sub-questions. The Danish survey, however, includes MTAs under research collaboration agreements.

Each country makes further exclusions which are, however, not necessarily fully consistent: for instance, the Swiss survey includes "service agreements" in the total of research agreements. As consulting agreements are accounted for in a separate question, the

wording suggests that "service agreements" is used for R&D service contracts. In France service contracts are a separate category referring to the delivery of a technical result in the performance of a specific task requested by the service provider (rental contracts for the provision of space, buildings or facilities are also excluded). In Germany only contracts for R&D services should be included, but contracts for the procurement of further services (without specifying the type of these services) should be excluded. The ASTP survey asks for the inclusion of all "*technical services provided to non-academic parties (e.g. scientific measurements, testing, analysis)*" under contract research.

Another non-definitory criterion which is also relevant for obtaining comparable data is the relevant date for including a contract in the survey. While the ASTP, Danish, Spanish and Irish surveys request that the contract was signed in the surveyed year in order to be included in the data collection, the German survey requests that it started in the corresponding year, and the Swiss survey just states that it should be a new contract. The wording of the UK survey suggests that not only new contracts but all contracts that are active in a particular year are being counted.

Revenues from these types of research contracts are collected in most countries that collect a figure on the number of contracts, except for Bulgaria and Denmark (Table 3). In Spain, the questions ask for the amount subscribed in the contracts and not the income. In Ireland, the question does not explicitly refer to research collaboration agreements, but the share of research expenditure from industry. It should be noted that such revenue data comes with a grain of salt and that it is questionable, to what degree revenues really measure the value of the produced knowledge or rather differing costs of providing a service (e.g. due to salaries, accounting requirements), ability to charge for a service because of reputation, or higher education policies and budgeting rules (Rossi & Rosli, 2015).

Consultancy and other service contracts

Several surveys measure the provision of non-research services to industry and other non-academic clients: ASTP, Bulgaria, Switzerland, Czech Republic, Germany, Spain, France, Ireland, Italy, Poland, and the UK. In all cases these services focus on or at least include consulting. The ASTP survey defines consulting as follows (see Appendix table):

> *"Consultancy means the provision of expert advice in a specific field by academics working in a PRO for the benefit of an external, non-academic organisation. Exclude consultancy agreements concluded by individual staff members directly with third parties (i.e. not through the PRO) or those that relate to research or technical services, testing of equipment and the like. The services do not typically involve experimentation, measurements, use of specialised equipment or generating new data (such activities would normally qualify as 'contract research') but make use of the academic's specialist knowledge and skills of the field in which he/she works."*

The definitions in the Irish, Italian, Spanish and UK surveys also specify that consulting – other than research – does not generate new knowledge. The ASTP definition excludes technical services and the testing of equipment, whereas the Spanish RedOTRI definition includes technical services (laboratory services, testing, etc.) in technical support contracts. The Swiss survey only asks for "other technology transfer contracts handled by your TTO" and does not separate between non-disclosure agreements (NDA), Material Transfer Agreements (MTA), consulting contracts, inter-institutional contracts, sponsoring, and donations. The data collection in the UK separates consulting contracts from contracts for services related to facilities and equipment. The Polish survey combines consulting with contract research.

Revenues from consulting and other services are included in the data collections of ASTP and five countries. In France, SATT only uses a metric for the revenues (and costs) of services, but not for the number of contracts (Table 3).

Table 3: Overview of metrics for research and service agreements (see Appendix table 25 and Appendix table 32 for verbatim definitions)

	ASTP	BE (LiEU)	BG	CH	CZ	DE	DK	ES	FR	IE	IT	LU	PL	SE	TR	UK	AU/ NZ	US	ZA
Research contracts	X	X	X	X	X	X	X	X		X	X		X		X	X			
Collaborative R&D separated[a]	X	X			X			X		X			X		X	X			
Contract research. separated	X	X						X		X			X			X			
Other research agreements separated								X											
Revenue from research	X	X	X	X	X	X		X			X		X		X	X			
Service and/or consulting agreements	X			X	X	X		X		X	X		X			X			
Consulting agreements separated	X				X			X		X						X			
MTAs separated								X			X		X						
Use of facilities or equipment										X						X			
Other service agreements separated								X					X						
Revenues from services/consulting	X				X			X	X		X					X			

[a] Separated means that the specific segment of data is collected as a subset of a broader category, e.g. a survey collects data on “Collaborative R&D” as a specific subset of what is counted under “Research contracts”.

4.4.Transfers via teaching

While the EC Expert Group on Knowledge Transfer Metrics included "Teaching" and "Professional Development" among the knowledge transfer channels (Campbell et al., 2020), it did not include any indicators to measure this channel among its core or supplementary indicators (see Appendix table 1, p. 65).

Two types of measures are included in some of the countries included in this stock-taking:

1) **Doctoral students with formal relationships to industry**
2) **Continuing education or continuing professional development and training offers**

Ad 1) Doctoral students with formal relationships to industry, commonly abbreviated as "industrial PhD students" or "industrial PhDs" contain data on the number of doctoral projects which are carried out within contractual relationships with partners outside academia. Such partners might provide funding or other inputs (data, infrastructure, access to practical problems etc.) for the doctoral work and in exchange benefit from getting preferential access to the results and/or doctoral graduates. Five countries, Bulgaria, Luxembourg, Sweden, Spain, and Türkiye, include measures of industrial doctorates in their data collections, but none of the countries has shared the exact definitions. Possible differences lie, for example, in the variable to be recorded (ongoing versus completed doctoral theses), whether only theses within a programme are recorded, as in Türkiye, or whether a minimum level of funding for the doctoral project must be in place for it to be included in the count, as in Luxembourg with 25%.

Ad 2) Continuing education (CE) or continuing professional development and training (CPD) offers are only assessed in two countries up to now: in the UK and Italy.

The HESA survey on Business and Community Services collects data on two variables, revenues from CPD courses and CE and total learner days of CPD/CE courses delivered. The definition of the participants of such CE and CPD offers is as "learners already in work who are undertaking the course for purposes of professional development, upskilling or workforce development". In some contexts, it might be difficult to distinguish between regular students participating in undergraduate or graduate education and CE/CPD participants. The 22nd Netval survey in Italy includes a section of questions for the Court of Auditors' 'Report on the University System'. One of these questions asks for the number of projects and revenues from 'Third-party training (master's degrees, executive training, etc.)'.

4.5.Invention disclosures

The number of invention disclosures is a measure that is collected in the majority of countries contributing to this report (15 of 19 countries).

An *invention disclosure* is a formal or informal description of an invention, discovery, or research result that is submitted to, discussed with, or evaluated by Knowledge Transfer Office (KTO) staff or similar experts in order to assess its potential for IP protection,

commercialisation, or societal impact beyond academia. It is usually submitted by one or more inventors to his, her or their institution in the form of a structured document or digital form provided by the institution. The invention disclosure usually triggers a process of evaluation and subsequent valorisation effort. The invention disclosure serves as a key tool for communication and a structured exchange of information between researchers and the KTO. As an internal working document, it enables the KTO to determine the most appropriate pathways for disseminating and utilising the research results—be it through patenting, licensing, collaboration, or other means.

In many institutions, researchers are obliged to report results with commercial potential to the institution either as the result of a legislative requirement or as the result of an institutional policy.

The definition of an invention disclosure is commonly close to the definition in the ASTP survey:

> *"Formal or informal descriptions of inventions or discoveries that are discussed with and/or evaluated by the KTO staff or other technology experts to assess their utility outside academia."*

There are some variances to the invention disclosure indicator. For instance, some countries report software separate from invention disclosures (e.g. IE) or undisclosed information/trade secrets separate from patentable inventions (ZA). Some countries make a distinction between sole and joint disclosures such as is the case when multiple inventors have different places of employment.

It is also worth noting that the invention disclosure indicator is a point-in-time indicator in that a submitted invention disclosure is a description of something at that point in time and the real patentable invention might come from further work beyond the disclosed subject matter or might, indeed, be of a different nature or form than the disclosed invention.

It should also be noted that most definitions presume that the act of whether to submit an invention disclosure is subjective, i.e. that a researcher will disclose an invention or similar, if he or she believes it is an invention. Whether this is then later deemed to be objectively the case (e.g. by meeting the criteria for a patentable invention) does not preclude that researcher from still submitting a form or similar communication.

4.6.Patent applications and patents

Patent applications

Priority patent applications is a standard metric for knowledge and technology transfer that is collected in all countries included in this exercise. Definitions stress that only applications that refer to a technically unique invention should be included in the counting (Appendix table). If applications are submitted to different patent offices for the same technically unique invention they should be counted only once.

Most surveys do not explicitly relate to utility models in their surveys. European surveys asking for utility models use separate questions (BG, ES, PL, TR), whereas the AUTM survey in the US includes utility model applications under patent applications. However, it also collects the information on utility applications in a sub-question which makes it possible to separate patent and utility applications for comparison purposes.

The questions on patent applications generally relate to priority patent applications filed with the national patent office in the survey period. However, some countries go beyond that and additionally collect data on (Table 4):

1) Applications filed at foreign patent offices (PO), including Patent Cooperation Treaty (PCT) extensions,
2) Applications of other organizations including the institution or their faculty as co-applicants or inventors.

Table 4: Additional measures for patent applications

	BG	DK	ES (RedOTRI)	IT (PROs)	PL	TR	UK	US	ZA
PCT (separately)	X		X	X	X			X	
EPO/internat.					X	X		X	X
Nationalisations				X	X				X
Other applicants		X					X		

Ad 1) Applications at foreign POs are the most common additional application-related information that is being collected. The Bulgarian, Spanish, Italian, Polish and US surveys ask for PCT extensions separately. In South Africa these are included among international applications.

Ad 2) The data collections in the UK and in Denmark include separate questions for patent applications of other institutions:

- In the UK the question refers to patent applications filed by an external party naming the higher education institution as a co-applicant or its staff as inventor.
- In Denmark the question asks for new priority patent applications filed by companies on the institution's inventions.

The South African survey also asks for the number of abandoned patent applications and the reasons behind abandoning an application.

Patents

In addition to patent applications, patents and patent families are other common metrics that are measured in several countries. The ASTP questionnaire includes a definition of patent family as "*a collection of patent applications and granted patents that claims the same priority date*" (Appendix table).

The surveys of ASTP and RedOTRI in Spain collect three separate indicators:

1) Patents granted,

2) Active patent families in the portfolio of a KTO,
3) Active patent families in the portfolio of a KTO which have been licensed or optioned.

The HESA Business and Community Interaction Survey in the UK collects patents granted and patent portfolio, but not data on licensed patents. The surveys in South Africa collect the number of patents granted and the patent family portfolio; in Switzerland the number of active patent cases ("pending patent applications or granted patents on an invention (patent family)"); and the SATT survey in France the number of IP assets managed. In Ireland and Türkiye the number of patents granted is included in the data collection. The Irish definition asks for an inclusion of "all the grants obtained, even if they are related to the same invention".

4.7.IP transactions

Counts of IP-related agreements

The national surveys collect a rather broad set of different metrics that relate to the IP-related contracts that KTOs sign. The definitions of the metrics (scope) as well as sub-metrics include several different aspects:

1. The *type of agreement* that is signed. Commonly three types are distinguished:

- Licence, i.e. the transfer of an Intellectual Property Right for the purpose of commercialisation
- Option, i.e. an agreement granting a potential licensee exclusivity to consider taking out a licence later in the process,
- Assignment, i.e. the transfer, usually sale, of the ownership of an Intellectual Property.

In certain surveys only the total number of Licenses, Options and Assignments (LOAs) is counted.

2. The *type of Intellectual Property* that is included in the contract. Again, different types of IP may be categorised separately: patents, software, materials, plant varieties, trademarks, trade secrets, copyrights, design rights, know-how, etc.

3. A third important aspect is the distinction between new agreements concluded in the previous calendar year and the entire portfolio of active agreements. While most countries collect data on the number of new LOAs in the previous calendar year, the UK collects the total number of licences (licensees is considered as an equivalent). This information on the total number of active agreements can be found in the Swiss and Australian surveys as well.

4. In the case of the latter, i.e. the total number of active agreements, a distinction is also made between *revenue-generating agreements* and agreements that do not generate revenues. The type of income is also differentiated on a case-by-case basis, for example by recognising running royalties separately (in CH).

5. A further differentiation is made in some countries according to the *licensee's sector*. There is a size-related differentiation, i.e. between SMEs and larger companies, as well as a separate counting of public organisations as partners in the agreements.

6. Another complicating factor is that more than one family of IP Rights can be included in a single agreement. For example, a license could include a family of patents related to a catalyst composition as well a family of patents for the preparation of a membrane electrode assembly, both of which may be interest to a licensee manufacturing a fuel cell. Survey definitions may need to take care of this distinction if one is specifically wanting to determine the number of "technologies" that have been commercialised – each technology being represented by its own patent family and typically arising from one invention disclosure. This is specifically dealt with in the South African survey, where if for example there are three technologies included in a single agreement, this would be counted as three transactions of a particular type. Interestingly in the USA, the AUTM survey counts a trademark when licensed in the same contract as other IP as an additional license. The ASTP practice and recommendation of the Working Group is to count the total number of LOA agreements only and to determine the number of individual IP rights licensed separately.

Table 5: Overview of metrics for IP transactions (see Appendix table 30 for verbatim definitions)[a]

	ASTP	BE (FR)	BG	CH	CZ	DE	DK	ES (REDOTRI/ SICTI)	FR (SATT)	IE	IT (PROs)	LU	PL	TR	UK	US	AU/ NZ	ZA
New IP agreements/LOAs (licences, options, assignments)	X	X	X	X	X	X	X	X/X	X[b]	X	X		X	X		X	X	X
New options	X						X	X/-		X	X					X		X
New licenses	X[c]							X/-		X	X		X			X		X
New assignments	X							X/-		X	X		X		X			X
New LOAs for each of: research materials[d], soft–ware licenses, others (excl. patent licenses or the above)	X						X[n]	X/X		X	X				X[e]	X[f]		
New LOAs for each of: patents, trade secrets, copyrights, design rights							X[n]			X	X							
New LOAs with SMEs, large firms, public entities				X				X/-		X[g]	X				X[h]	X[i]		X[j]
New LOAs with multiple institutions, inc. equity				X							X							
New LOAs with Multinational Corporates (MNC), non-commercial entities								X/-		X[g]								
New LOs that are exclusive/non-exclusive								X/-								X		X
New licensees, IP buyers, optionees (separately)							X											
Active IP agreements/LOAs[m]				X			X		X		X		X		X		X	
Option agreements (exercised)																X		
Active patent families licensed	X[l]							X	X		X							
Active LOAs yielding: revenues, running royalties				X			X	X/X			X	X[k]				X		X
Number of IP creators or enablers receiving revenue																		X
Percentage of portfolio ever commercialised (through license or assignment)																		X

[a] Due to the "Professor's Privilege" in Sweden none of these parameters are collected and there is no overall Swedish survey on KTT. – [b] SATT do not count option agreements. – [c] In the ASTP survey "patent licenses" are specifically requested. – [d] Material Transfer Agreements (MTAs) have been considered to be a licence. – [e] UK specifies income generating MTAs. – [f] Plant/seed; research/biological materials; copyright; software. – [g] Ireland collects data for Irish and overseas (foreign) entities separately. – [h] UK only categorises SME and non-SME commercial entities and non-commercial entities. – [i] AUTM just differentiates between small and large companies. – [j] South Africa also collects data for black-owned entities and local and foreign entities separately, including distinction between South African and rights in other territories. – [k] Luxembourg does not distinguish between the two

categories. – [l] ASTP asks for licensed and optioned patent families. – [m] note that there is a lack of clarity regarding whether an assignment is regarded as 'active' in subsequent years. It is conceivable that it could be is it was subject to royalties or other performance milestones. – [n] Separate measures for patent rights, utility models, & know-how and for software.

Table 6: Overview of metrics for revenue arising from IP transactions (see Appendix table 31 for verbatim definitions)[a]

	ASTP	BE (FR)	BG	CH	CZ	DE	DK	ES (REDOTRI/ SICTI)	FR (SATT)	IT (PROs)	PL	UK	US	AU/ NZ	ZA
Gross Revenue from IP	X	(X)	X	X	X	X	X	X/X	X	X	X	X	X	X	X
Revenue from patent licenses	X						X	X/-	X	X			X		X
Revenue from patent licenses to spin-outs											X	X			
Revenue from patent licenses to SMEs, non- SME commercials, non-commercials, for non-software, software only, other IP revenues												X			
Revenue from new licenses/options										X					
Revenue from active licenses/options										X			X		X
Revenue from assignments							X			X		X			X
Revenue from cashed-in equity	X						X		X				X		X
Revenue from licenses & cashed-in equity									X						
Revenue from patent licensing and assignment			X						X						
Revenue from "other IP": industrial designs, trademarks, software, databases							X[d]	X/X					X		
Total value of equity in all spinout / start-up companies owned by institution														X	
Revenue from cashed in equity and dividends from shares in start-ups			X		X			X/-					X		X[b]
Revenue from licenses allocated to: Inventor research group, KTO										X					
Revenue from licenses distributed to inventors									X[c]	X					X
Revenue from licenses distributed to "enablers"															X
Number of IP creators or enablers receiving revenue															X

[a] Due to the "Professor's Privilege" in Sweden none of these parameters are collected and there is no overall Swedish survey on KTT. Moreover, the surveys in Ireland, Luxembourg, and Türkiye do not collect data on revenues from IP agreements.
[b] South Africa collects separate revenue data for cashed-in equity and dividends.
[c] Includes revenue from cashed-in equity.
[d] Only software.

Revenue from IP transactions

Revenue is generally associated with the IP agreements discussed above and it can arise in different forms depending on the nature of the deal structure. Various of these aspects may be separated out by different countries during metrics collection.

***Option Agreements* may result in:**

- **Reimbursement of the licensor's patent expenses during the term of the option,**
- **Payment of an option fee,**
- **The optionee undertaking to do evaluation testwork, or pay to have testwork done at the PRO.**

***License Agreements* may include one or more of the following:**

- **An upfront, or signing fee,**
- **Fixed royalties, or minimum annual royalty fees,**
- **Running royalties, based on e.g. the sale of specific quantities of products based on the IP that has been licensed in a particular year (or other period),**
- **Milestone payments, such as on the grant of a patent in a specific territory, or when a certain stage of clinical trial has been completed successfully,**
- **Reimbursement of historical patent costs, or payment of ongoing costs of IP prosecution and maintenance.**

***Assignment Agreements* transfer the ownership of the IP to another party, generally a company that will undertake its commercialisation, and revenue may include:**

- **A once-off payment, or a series of payments,**
- **Milestone based payments,**
- **Equity in the company, particularly in the case of spin-off companies. Whilst equity is held, revenue may come through a) a share of the dividends declared by the company, or b) revenue from the sale of the equity by the PRO, i.e. "cashed-in equity"**

Where IP is jointly owned by the PRO and another party(ies), generally one party will be responsible for the collection of the revenue from the IP transaction and the revenue is apportioned to each party according to their share in the ownership of the IP. It is important in a survey that only the portion accruing to a particular institution is declared as revenue by it, else in a national survey this could lead to double counting.

Within an institution typically there is recovery of patent expenses from the revenue and then distribution to the inventors in their personal capacity and then to research groups, departments and faculties associated with the inventors (or IP creators) as well as to support other activities of the university/PRO and even innovation funds. In surveys, the portion of revenue being received by inventors is often of interest, as is the extent to which patent expenses are recovered. The inventors may also elect to share a portion of their revenue with the "enablers" who assisted in the development of the IP, but who did not participate in the inventive step, so could not be recognised as an inventor on the patent.

The various parameters relating to IP transactions and the revenue they may generate summarised in Table 6 for the different national and regional surveys.

The Cambell et al. (2020, p. 25) report proposed one definition in the category of revenue from IP transactions: *"Licences & assignments - gross revenue to PRO: Total income from all types of know–how and IP (patents, copyright, designs, material transfer agreements, confidentiality agreements, plant breeder rights, etc.) before disbursement to the inventor or other parties. Include licence issue fees, annual fees and milestone, termination and cash–in payments. Exclude licence income forwarded to other institutions than those served by the KTO or to companies."*

In the ASTP survey respondents are asked to provide the gross revenues from the commercialisation of all types of know-how and IP. This is before the recovery of any expenses and excludes the amount due to any co-owner of the IP, except that accruing to third parties who are individual inventors. The reasoning is to prevent double counting of revenue accruing to more than one reporting institution. Following this reasoning the ASTP definition would need to be changed to extend this from individuals to also include companies, or non-European PROs who would not report revenue data to ASTP or a national body in a European countries as these too would not be double counted. In the recommended definition at the end of this report, the revenue is simply taken as that accruing to the reporting institution only. The survey then requests the amount of the gross revenue reported that is attributed to patent licenses and cashed-in equity. Other surveys seek more comprehensive data in particular the Spanish RedOTRI, Italian, Irish and South African surveys.

The number of IP transactions and revenue received is broken down into sub-categories in different surveys, such as: Separate data for licenses, options and assignments

- Distinguishing between the types of entities that the transaction has been entered into with (spin-offs, SMEs, corporates, not for profits, multinationals, etc.) and in the Irish and South African surveys, further classifying these as foreign or local commercial partners,
- Data per type of IP (e.g. patents, software, copyright, designs, trade secrets, etc.),
- Whether agreements are exclusive or non-exclusive, new in a survey year, or active,
- Whether revenue arises from new or active transactions as well as dividends or cashed-in equity from spin-off companies.

The AUTM survey gathers the number of transactions associated with the revenue reported and they also ask for the number of transactions that exceed $1 million in a survey year. In the South African survey, the number of IP transactions that fall into different revenue brackets is assessed, with US $ purchasing price parity applied at the highest level, which provides interesting data relating to the median size of annual revenue from a transaction.

Depending on specific intentions of national policies, one can bring in the additional parameters such as the type of commercial partner (e.g. SMEs), the type of IP that is the subject of an LOA or an indication of the amount of revenue that is being paid to inventors.

4.8.Spin-off, spin-out, start-up

Definitions of spin-offs and start-ups distinguish up to four criteria (see Table 7 and Table 8):

1) ***"Who"* refers to the founders of the new venture and their relationship to the university or public research organisation (PRO). This includes employees, sometimes also labelled as researchers, students or alumni which have worked or studied at the organisation before.**
2) ***"What"* specifies the core contribution of the university/PRO to the new company, commonly denoted as its Intellectual Property (IP) or knowledge in the wider sense.**
3) ***"How"* covers the type of relationship and whether it is formal/contractual or merely informal.**
4) ***"When"* refers to the point in time that is relevant for including the undertaking in the data collection.**

Spin-off, spin-out

In Europe, spin-offs ("spin-outs" in Denmark, the UK, Ireland, Türkiye) are commonly described as companies that draw on IP or knowledge from the university/PRO which is governed by means of a formal agreement (Table 7). Switzerland and Sweden are exceptions as such companies are called start-ups depending on license, option or IP sale agreement and not spin-offs.

Likewise, outside of Europe the term start-up is more common: in Australia and South Africa spin-outs and start-ups are synonyms, and in the AUTM survey in the US only the term start-up is used (Table 8), however defined in a similar manner as spin-offs in Europe. Therefore, they are also discussed in this section under spin-offs.

Instead of having a contract to commercialise the intellectual property of the parent organisation, spin-off companies can also be linked to it on the capital side if the parent organisation holds part of the equity capital. This is taken into account in Bulgaria, the Czech Republic, Spain, and Ireland. Moreover, some countries explicitly mention employees in the description: the Italian definition includes among spin-offs, companies based on university/PRO IP, companies founded by university/PRO faculty and companies in which the university/PRO owns shares. Only in Switzerland and the UK the involvement of employees, students or alumni is even a must for considering a company as a spin-off/spin-out. In Türkiye only companies (co-)owned by academic staff are considered as spin-outs, even though Campbell et al. (2020, p. 25) recommended to not limit spin-offs to companies established by staff.

Two different solutions are used for fixing the date at which spin-off companies should be counted: either the date of the registration or incorporation of the company (ES, FR, CH, IT, TR) or the date of the IP agreement/transfer (DK, UK) are being used. In the Czech Republic and in South Africa the definitions are not specific about date of IP transaction or date on which the company was incorporated.

The surveys generally collect data on newly formed spin-offs/spin-outs in the survey year. However, several countries also collect data on the number of active spin-offs which were founded in a particular time window before the survey: in Ireland and Luxembourg only companies at least three years post-formation, with at least one employee, sales revenue and/or raised equity should be counted. In the US all start-ups (= spin-offs) which still do business based on a foundational licence with the university should be counted, while companies which discontinued the licence contract should not be counted. The ASTP survey does not make any limitation and asks for all operating spin-offs.

Table 7: Overview of definitions on spin-offs/spin-outs (see Appendix table 33 on verbatim definitions)

	Term	Who?	What?	How?	When?
ASTP	Spin-off	Employee, other	IP of uni/PRO	Formal contract	
BE	Spin-off	Employee, other	IP of uni/PRO	Formal contract	
BG	Spin-out[a]			Ownership (equity)	
CH	Start-up depending on LOA	Employee, graduate, alumnus	Business case based on uni/PRO	LOA contract	Registration
CZ	Spin-off	Academic, student	IP of uni/PRO (or licensed from a student)	Ownership (equity) or contract (often license)	Registration, transfer of IP to an existing legal entity
DE	Spin-off		IP of uni/PRO (incl. open source lic.)	Formal contract	
DK	Spin-out		IP of uni/PRO	Formal contract	Contract date
ES	Spin-off	Employee possible	Knowledge of uni/PRO	Ownership or contract	Registration
FR	Spin-off		IP of uni/PRO	Formal contract	Registration
IE	Spin-out	Employee possible	IP of uni/PRO	Ownership or contract	
IT	Spin-off	Academic, employee	IP of uni/PRO	Ownership or contract	Incorporation
LU	Spin-offs				
PL	Spin-off	Employee possible	Tech., results or know-how of uni/PRO		
SE	Start-up	Employee, student, alumnus	Knowledge of uni/PRO	Ownership (equity) or contract	
TR	Spin-out	Academic	IP (know-how) of uni/PRO	Univ. board decision	Registration
UK	Spin-out[b]	Employee, student, alumnus	IP of uni/PRO	Formal contract	Transfer of IP/know-how
AU/NZ	Spin-out / Start-up		IP of uni/PRO	Formal contract	
US	Start-up		IP of uni/PRO	Formal (license) contract	Contract date
ZA	Spin-out / Start-up		IP of uni/PRO[c]	Formal contract / IP Transaction	Registration / Contract date

[a] Spin-off is a company that remains part of a PRO and exists to offer specialised consulting services and Spin-in describes the colocation of a company to exploit academic facilities and expertise.
[b] Sub-group of spin-outs with PRO ownership and other spin-outs without PRO ownership.
[c] Start-up as defined must be formed to commercialise university IP and specifically excludes companies that have had other business interests and then enter into an IP transaction to commercialise the IP.

Start-up

Start-ups do generally not depend on IP from the university or PRO and do not have a formal IP agreement either, but the founders must be related to the university/PRO: they can either be current or former employees or students (Table 8). In Türkiye and in the UK student and staff start-ups are counted separately. In France, start-ups backed by the university or public research organisation, e.g. through research agreements or license contracts set up after their creation (the IP is not foundational), are counted separately. This is similar to singling out certain partner types in IP contracts, e.g. as in the AUTM survey in which licenses and options with small companies are counted separately.

Table 8: Overview of definitions on start-ups (see Appendix table 33 on verbatim definitions)

		Who?	What?	How?	When?
ASTP	Start-up	Employee, student	No IP of uni/PRO		
BE	–				
BG	Start-up		No equity, but license contract possible		
CH	Start-up	Employee, graduate, alumnus	Business case based on uni/PRO	No formal contract	Registration
CZ	Start-up	Employee, student	No IP of uni/PRO	No formal contract	Registration
DE	Start-up	Employee, student	No IP of uni/PRO	No formal contract	
DK	–				
ES	Start-up	Entrepreneur from PRO environment	No knowledge of uni/PRO		
FR	Start-up[a]		IP of uni/PRO not a must		
IE	Start-up	Employee, student	No IP of uni/PRO	No formal contract	
IT	Start-up	na	na	na	na
LU	–				
PL	Start-up	Employee, student, alumnus			
SE	Start-up	na	na	na	na
TR	Start-up	Student, alumnus	IP (know-how) of uni/PRO		
UK	Start-up[b]	Employee, student, alumnus	No IP, know-how of uni/PRO		Registration
AU/NZ	–				
US	Start-up		IP of uni/PRO	Formal (license) contract	Contract date
ZA	–				

[a] Backed start-up ("adossée"): Company with fewer than 20 employees, created less than 10 years ago, with a research collaboration or technology transfer contract (licence or exploitation contract) with a public research establishment on the site, set up after its creation (the IP is not at the origin of the creation).
[b] Staff start-ups and student start-ups are separated.

4.9.Impact measures

In our understanding impact refers to the effects that are generated by the transferred knowledge during and after the transfer. These effects can be generated internally in the university or research institution or outside in the surroundings of the research organisation and among its partners and other stakeholders (external); they can be positive or negative, i.e. generate or destroy value; and the value can be of any type, above all economic, but also social, cultural, political, environmental, not to forget, scientific, or other.

Inside the research institution, transfer projects can increase, for instance, the practical knowledge of researchers and contribute to greater practical relevance of research, but this may come at the cost of less interest in basic research or greater secrecy (Perkmann et al., 2013) – we are not aware of attempts to measure this in any of the surveys which were reviewed for this report.

The current impact measures that exist are related to the external economic impact generated by IP and spin-off companies as a follow-on measure to the number of such new firms that have been created (and are still operating). The most common way of generating metrics on long-term impacts is through collecting data on the portfolio of academic spin-off companies of the university or research institute (Table 9). This data can refer to different activities or the value of spin-offs:

- Annual revenues generated by the spin-offs (Bulgaria[1], Czech Republic, Spain/RedOTRI, Sweden, Türkiye[2], South Africa, UK),
- Employees working in the spin-offs (ASTP, Bulgaria, Czech Republic, Spain/RedOTRI, Sweden, South Africa, UK),
- Number of spin-offs acquiring external capital (Bulgaria, Spain/RedOTRI, Ireland),
- Capital raised by the spin-offs (Bulgaria, Italy, Spain/RedOTRI, France/SATT, UK),
- Tax payments by start-ups (Sweden).

The data is captured for the companies that are active at a defined date. The ASTP instructions ask for the exclusion of changes (in the number of FTE) after take-over or merger of the spin-off company by/with another company and request that the last (FTE) count before such event be used instead.

Four countries capture measures for innovations, commonly defined as products or processes based on licenses, which result from transfers to companies or from spin-offs:

- In Switzerland and the US, the surveys ask for new licensed technologies that have become available for consumer or commercial use,
- the Irish survey asks for the number of market launches of products or services based on a licence,

[1] In Bulgaria, this information is collected for start-ups, which are defined as companies in which the parent organisation does not hold any capital share but has concluded a licence agreement for intellectual property in return for royalties.
[2] In Türkiye this information is collected separately for spin-offs and student/graduate start-ups.

- in South Africa, the existence and numbers of licensed actionable disclosures available for consumer (public) or commercial use – in South Africa and internationally – are measured.

A few countries use other measures for impact: the data collections in the Czech Republic ask for a demonstrable contribution to the development of public policies, methodologies, and legislation as well as for savings for households and public budgets resulting from knowledge and technology transfer. The UK survey captures revenues from European, UK government and other regeneration funds and considers these as a proxy for direct economic and social impact of a higher education institution (https://www.hesa.ac.uk/support/definitions/hebci). The Bulgarian survey collects the number of PhD graduates in industry which defended a doctoral dissertation based on an industrial project. No further metrics have been designed for other societal impacts, be they technological, social, environmental, political or the like. Up to now they have been documented mainly in a qualitative manner or in pilot exercises.[3]

Likewise, measures for the internal impact of knowledge exchange activities on higher education and research organisations, e.g. on the research budget, publications or staff/students, are commonly not available. In Bulgaria and Spain (RedOTRI) data on faculty working (part-time or with leave of absence) in start-ups is collected. NETVAL collects in Italy some data on the institutional impact of transfer activities, covering aspects such as research capacity enhancement, organisational learning, academic reputation, and staff development.

Table 9: Overview of impact metrics (see for verbatim definitions Appendix table 34 and Appendix table 35)

	ASTP	BG	CH	CZ	ES	FR	IE	IT	SE	TR	UK	AU/ NZ	US	ZA
Internal impact														
Faculty with spin-off affiliation		X			X			X						
External impact														
Innovations			X				X						X	X
Spin-off revenues		X		X	X			X	X	X	X			X
Spin-off employment	X	X		X	X			X	X		X			X

[3] See Oxford University Innovation. Impact Report 2023. Oxford's Impact Odyssey. https://impactreport2023.innovation.ox.ac.uk/ or the EC's Knowledge Valorisation Platform, https://research-and-innovation.ec.europa.eu/research-area/industrial-research-and-innovation/eu-valorisation-policy/knowledge-valorisation-platform_en

No. of spin-offs with investment		**X**			**X**		**X**							
Investment in spin-offs		**X**			**X**	**X**		**X**			**X**			
Data related to student/ graduate start-ups										**X**				

5. Summary and recommendations

5.1. Summary

Current metrics used across Europe (and beyond)

In our perception the existing KTT data collections in Europe put a strong focus on output measures. Both input and impact measures are comparatively scarce (see Table 1, p. 24).

The existing input measures are generally related to the internal inputs, i.e. the personnel and/or expenditures of the universities and PROs for R&D and the resources of the KTO. External inputs to knowledge exchange, like business R&D expenditures, demand for academic graduates or for university/PRO inventions by the corporate sector, are generally not collected in KTT surveys, and must be taken from other sources (like national innovation surveys, R&D surveys, higher education surveys, etc.) as they become available.

Though most indicators focus on KTT output, indicators for the outputs of research and executive education, training and teaching are still comparatively scarce or not disaggregated (see Table 1, p. 26). Commercialisation indicators are the most common type of indicators. Most countries collect data on (see Table 10):

- **invention disclosures (79% of countries),**
- **new patent applications (100% of countries),**
- **active patents/patent families (68% of countries),**
- **new IP transactions (licences, options, assignments) (74% of countries),**
- **and the revenues resulting from IP transactions (68% of countries).**

Consulting agreements are also often counted (53% of countries), and several countries also collect revenue data from consulting (47% of countries). To about the same degree applications for other IP rights (IPR) than patents or portfolios of other IPR are captured (53% of countries). Indicators on the frequency of collaborative research agreements (68% of countries) and/or R&D contracts for non-academic organisations (47% of countries) as well as the revenues resulting from research agreements (58% of countries) are standard measures to represent the knowledge co-creation taking place via research. As an external output the newly created spinoffs are counted in nearly all surveys (95%). Metrics for KTT through students and the teaching mission are available only in few countries (37% of countries), which e.g. collect numbers on industrial PhD students, or lifelong learning education offers outside the standard Bachelor, Master and doctoral levels.

The current impact measures that exist are related to the external economic impact generated by IP and spin-off companies as a follow-on measure to the number of such new firms that have been created (and are still operating). Virtually no metrics have been designed for other societal impacts, be they technological, social, environmental, political or the like. Up to now they have been documented mainly in a qualitative manner or in pilot

exercises.[4] Likewise, measures for the internal impact of knowledge exchange activities on higher education and research organisations, e.g. on the research budget, publications or staff/student recruitment, are commonly not available.

Table 10: Overview of most popular metrics

Category	Metrics	Percent of surveys in which they appear (%)
Internal input	KTO Resources	68%
	Research expenditures	63%
Internal output	Research agreements with non-academic parties	68%
	Revenues from R&D agreements with non-academic parties	58%
	Consulting agreements	53%
	Revenues from consulting agreements	47%
	Invention disclosures	79%
	Patent applications	100%
	Active patents/families	68%
	New IP agreements (LOA)	74%
	Gross revenues from IP agreements	68%
External Output	New spinoffs	95%
External Impact	Spin-off value/activity	58%

Note: The percentages show the share of countries and international surveys out of the 19 covered in this report which include the corresponding metric.

Definitions of the metrics used across Europe (and beyond)

The benefits of harmonised definitions and thus of data that can be compared across national borders have been recognised and proposals for definitions have been put forward (Campbell et al., 2020). Such proposals always face an uphill struggle when divergent national definitions are required by donors, when long data time series already exist on this basis, or when aspects required by a definition are not (cannot be) recorded.

In a first step, it is important to grasp and present the differences in the definitions used in a structured way. This report attempted to do this first step by collecting and translating the definitions and discussing the main similarities and differences. Based on this, the consequences resulting from the heterogeneity can be determined in a second step and a prioritisation for harmonisation can be carried out.

Similar definitions and metrics have been established for spin-offs/start-ups and for metrics related to the commercialisation of intellectual property and the inputs from KTOs in most countries. This also applies to a large extent to research contracts, especially with

[4] See Oxford University Innovation. Impact Report 2023. Oxford's Impact Odyssey. https://impactreport2023.innovation.ox.ac.uk/ or the EC's Knowledge Valorisation Platform, https://research-and-innovation.ec.europa.eu/research-area/industrial-research-and-innovation/eu-valorisation-policy/knowledge-valorisation-platform_en

regards to the distinction between collaborative research and contract R&D. For practically all other metrics, harmonised definitions are currently lacking. Hence, this report presents a recommendation for the definitions that should be used for the production of a few, internationally comparable, core metrics on knowledge and technology transfer.

Table 11: Overview of definitions

Category	Metric	Instruction and definition
Internal input	KTO staff (as a measure for KTO resources)	*KTO staff in Full-Time-Equivalents (FTEs) at year end.* Account for staff employed by the main responding entity, either an independent KTO operating for one or several PROs, or all KTT staff of one PRO. KTO staff is distributed on 4 activities: Research support (MTA, NDA, Collab Agreements), Commercialisation (IP protection, licensing and consultancy), • Entrepreneurship support, • Business Development • All other roles go into "other".
Internal input	Research expenditures	*Aggregate research expenditures for all PROs for which your KTO is reporting data.* Include share of academic costs dedicated to research (e.g. salary costs of permanent academic staff, costs of administrative support, capital expenditures on new equipment), irrespectively of the funding source. Include clinical trials (systematic tests conducted *on* human volunteers before a new drug, vaccine, device or treatment can be introduced into the market) and single them out in a separate sub-question. Exclude cost of new buildings or land.
Internal output	R&D agreements with non-academic parties	*Agreements with non-academic parties that govern research and experimental development (R&D) activities of staff at the organisations for which you are responsible.* R&D is understood as creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications. Include R&D agreements with all public and private partners, including companies, public administrations and non-profit organisations including those under which the non-academic party does not make any cash payment to the PRO directly (e.g. in case the project is fully subsidised). Exclude agreements with science funders, i.e. science foundations, research councils, science funding agencies, which fund the creation of fundamental knowledge without an application partner involved. NDAs, MTAs and IP-related agreements should not be counted as R&D agreements. Assign the agreements to the fiscal years according to the signing date on the contract. Count contract R&D agreements and collaborative R&D agreements separately.

Category	Metric	Instruction and definition
		Contract R&D: a non-academic client formulates the research objectives which are then pursued and implemented by the academic partner. The client owns the results and determines how the results can be used, e.g. whether they can be published or not. The funding is provided by the client and third-party research sponsors are commonly not involved. Non-routine technical services (e.g. scientific measurements, testing, analysis) provided to non-academic parties will qualify as contract research. *Collaborative R&D*: the academic and at least one non-academic partner collaborate (contribute to the design, implementation and output) in the research, and own the results jointly, or, alternatively, each party owns the results that it produces. The funding can come from different sources, the academic institution, the non-academic collaboration partner and/or third-party research sponsors (e.g. funding agencies, foundations).
	Revenues from R&D agreements with non-academic parties	*Revenues from R&D agreements with non-academic parties*. Gross amount received directly by your PROs from non-academic parties under the following agreement types: • Contract R&D Agreements • Collaborative Research Agreements Note that we are collecting data at an institutional level and not only at KTO level, so please contact other relevant departments, if needed. Please count only the revenue your PROs directly receive and not the total project budget (i.e. exclude recurring payments that are forwarded to other project participants).
	Consulting agreements	Consultancy means the provision of expert advice in a specific field by academics for the benefit of an external organisation. Exclude consultancy agreements concluded by individual staff members directly with third parties (i.e. not through the university/PRO) or those that relate to research or technical services, testing of equipment and the like. The services do not typically involve experimentation, measurements, use of specialised equipment or generating new data (such activities would normally qualify as 'contract research') but make use of the academic's specialist knowledge and skills of the field in which he/she works.
	Revenues from consulting agreements	*Revenues from consulting agreements*. Gross amount received directly by your university or PRO from consulting agreements.
	Invention disclosures	An invention disclosure is a formal or informal description of an invention, discovery, or research result that is submitted to, discussed with, or evaluated by a KTO or similar knowledgeable representative of the institution in a structured format by one or more researchers that are employed by the institution. The disclosure is done for the purposes of determining subsequent valorisation efforts and the disclosure may be mandatory in form and/or process

Category	Metric	Instruction and definition
		following a legislative requirement or as the result of an institutional policy.
	Patent applications	*Priority patent applications filed.* A priority patent application constitutes the first patent application for a technically unique invention. If priority patent applications relating to the same technically unique invention are submitted simultaneously in multiple patent offices, or are submitted after the first priority patent application within the priority year, only a single priority application should be counted.
	Active patents/families	*Active patent families in the patent portfolio managed by your KTO.* A patent family is a collection of patent applications and granted patents that claims the same priority date.
	New IP agreements (LOA)	*Total number of new license, option and assignment agreements (LOAs) signed.* *Licence:* Contract in which the owner (licensor) gives another party (licensee) the rights to use an intellectual property. *Option:* A contract under which a potential licensee is granted a period of exclusivity during which it can decide whether it may wish to take a licence to the intellectual property and negotiate the terms of a licence agreement. *Assignment:* Contract transferring ownership of right in IP to a third party. *License, option and assignment agreements* can include: patent licenses, material licenses, software licenses, know-how and other licenses. Multiple non-exclusive agreements for one asset may be counted but one agreement is only counted once, even when multiple assets and/or different IP categories (e.g. trademark, copyright, patent...) are included in the agreement.
	Gross revenues from IP agreements	*Gross revenues from commercialisation of IP earned.* Gross revenues are the revenues from the commercialisation of all types of know-how and IP (e.g. patents, copyright, designs, trademarks, software, trade secrets, plant breeder rights, materials etc.) inclusive of any distributions within the PRO or to inventors. Include license issue fees, annual fees, option fees, milestone payments, running royalties, minimum annual royalties, change-of-control payments, dividends and proceeds from cashed-in equity. Exclude all revenues forwarded to other parties to whom a share of the total revenue accrues. Exclude any reimbursement of historical patent costs or reimbursement of ongoing costs of IP prosecution and maintenance if specified as a separate payment in an agreement. It does NOT include research and development funding, or trademark licensing royalties from university/PRO insignia.

Category	Metric	Instruction and definition
External output	New spin-offs	*New spin-offs*. Spin-offs are companies expressly established to develop or exploit IP and with a formal contractual relationship for the use of this IP. Include, but do not limit to, spin-offs established by staff of the organisation for which you are responsible. Exclude companies that have no formal agreement for commercially developing IP or know-how created by the institution even if you consider them as start-ups, for instance because they were founded by (former) staff or students. Assign spin-offs to the fiscal years according to the signing date on the first (IP) contract.
External impact	Employees of spin-offs (as a measure for spin-off value/activity)	*Staff members (FTEs) employed by all operating spin-off companies (in aggregate) at the end of the survey period.* Please disregard any change in the number of FTEs after take-over or merger of the spin-off company by/with another company. Use the last FTE count before such event instead.

Comparisons of knowledge and technology transfer indicators, for example in the sense of benchmarking between individual organisations, regions or countries, should, as explained in Chapter 2, take into account the internal conditions within the organisations or in the science system (inputs) and external influences from the environment, e.g. the demand for transfer services from industry. Furthermore, they should take into account the wide range of transfer mechanisms (outputs) and not draw hasty conclusions about the overall system from a single indicator with poor performance. A key aspect of the scope and structure of research expenditure can be addressed by standardising the metrics. With the help of R&D expenditure, composite indicators can be calculated, such as R&D projects with scientific institutions per R&D expenditure, patent applications per R&D expenditure, or licence agreements per R&D expenditure. In principle, it should also be discussed and, as far as possible, taken into account whether the basis for R&D expenditure is actually appropriate or whether adjustments need to be made and reflected in the data collection. For example, when calculating patent applications per R&D expenditure in a calendar year, it may be desirable to exclude research expenditure in specialist areas that typically do not produce patentable research results or clinical research that is carried out as a result of patentable research results.

5.2. Recommendations to universities and public research organisations and KTT stakeholders

The NAAC working group makes a number of recommendations for the further development and consolidation of WTT metrics and their application in scientific institutions:

1) **Work towards obtaining a comprehensive picture of the KTT activities of your organisation by covering all channels used (knowledge valorisation).**
2) **Institutionalise data collections related to KTT at all levels in your higher education and research organisation.**
3) **Report a set of core indicators that cover internal and external inputs, outputs and impacts of KTT. A first recommendation for core indicators is provided in Table 11.**
4) **Engage in impact pilot studies and develop a solid understanding of the economic and non-economic (technological, social, environmental, political, health-related, etc.) impact of your work.**
5) **Apply the harmonised definitions and work with your funders and owners to find ways to use these definitions for your other reporting requirements as well. The definitions are included in Table 11.**
6) **Bridge any transition period in the changeover of data collection by maintaining old and new (harmonised) definitions of the metrics in order to be able to extrapolate time series.**

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7. Appendix

7.1. Indicators from the literature

Appendix table 1. Indicators from Campbell et al. (2020)

Core Indicators	Supplementary indicators
KT Internal Context Indicators	
Existence of PRO KT & IP Policies	—
PRO KT Strategy	—
Direct funding via the PRO for KT e.g. to KTO	Total annual budget for KTO IP & Patent budget
Indirect funding via the PRO for KT e.g. proof of concept	Annual budget
Existence of KTO	Number of FTE in KTO Number of RTTP qualified FTE
Age of KTO	—
Research expenditure in PRO	—
Number of researchers[a]	STEM Other
KT Environment Indicators	
National R&D spend as % GDP	—
National Higher Education Expenditure on R&D (HERD)	—
National Business Expenditure on R&D (BERD)	—
Availability of public funding programmes to support KT/Industry engagement	National Regional
Availability of investment capital	National Regional
	Incubators & accelerators National Regional
	Local company types e.g. SME/ MNC mix, absorptive capacity National Regional
	National policy, legal & regulatory environment as it affects KT
Activity Indicators	
Invention disclosures (IDF) — number	% of IDFs resulting in license or assignment
Licences & assignments — number[b]	Licence by type — number: MTA

Core Indicators	Supplementary indicators
	Patent, copyright, trademark & know–how Software IP Protection by type: Patent filings Copyright registration Trademark registration Plant variety By type of transaction: Licence Assignment Other: % of patents licenced or assigned
Licences & assignments — gross revenue to PRO	Licence by type - gross revenue to PRO: MTA Patent, copyright, trademark & know–how Software By type of transaction: Licence Assignment
Spin–offs[c] — number	Stage — number: Formed, pre–investment Receiving first investment Maturity — companies in existence 5+ years Acquired
Spin–offs — gross revenue to PRO from equity sale	—
Research collaboration agreements & research contracts with non–academic third parties — number	Detail by: Collaborative research (Where both the firm and the PRO participate in the design of the research project, contribute to its implementation and share the project outputs) Contract research (Where all research is performed by the PRO) Further breakdown: Number with companies By other non–academic third parties Other: % of Research collaboration agreements & research contracts which have led to IP licence or assignment
Research collaboration agreements & research contracts with non–academic third parties — gross revenue to PRO	Detail by: Collaborative research Contract research Further breakdown: By companies By other non–academic third parties Direct funding from non–academic third party Total funding (non–academic third party plus any co–funding e.g. from EU, national government)
Consultancy agreements with non–academic third parties — number	Further breakdown: By business By other non–academic third parties
Consultancy agreements with non–academic third parties — gross revenue to PRO	Further breakdown: By business By other non–academic third parties
KT Impact Indicators	
Jobs created in spin–offs	

Core Indicators	Supplementary indicators
Aggregate investment in spin–offs	
Products on market	
Culture change in PRO	Indicators could include: Percentage of researchers engaged in KT (and change over time) Net promoter score for engagement in KT Prominence of KT in PRO strategy % change in PRO funding for KT/KTO
Societal benefits: evidence–based case studies	
Economic Benefits	

[a] The definition of researcher varies between countries. Pragmatically, the national/ministry practices and definition for researchers is recommended.

[b] Options have been excluded from the list of indicators. An option is a prelude to a licence or assignment at which stage the company must make a decision to pay for access to, or ownership of, intellectual property. Additionally, an option is frequently embedded into a collaborative agreement to provide a window of opportunity for the partner to consider whether it wishes to execute a licence or assignment. Licences and assignments are therefore considered, in this report, to be the more meaningful.

[c] Spin–off is also referred to as Spin–out and relates to a company formed using PRO IP (see Recommendation 5). It is different from a Startup. While a more complete picture of KT at the PRO could be built by measuring start–ups that do not rely on PRO IP and student–led startups, as these tend to be created outside of the purview of the PRO administration they are notoriously hard to track. Where they are recorded, particularly student start–ups, this will tend to be on the back of a specific programme run through the PRO. As such, although important, these indicators do not form part of the recommendations for core indicators from the Expert Group.

Appendix table 2. Indicators on policies and practices from Arundel & Es-Sadki (2021)

Key policy metrics

- **Importance of goals for knowledge transfer (earn income, support regional development, marketing university capabilities, etc.),**
- **Ownership rules for IP developed by public research organisations, including ownership of IP resulting from public research organisation– firm research agreements,**
- **Financial incentives for researchers to support knowledge transfer (incentives for invention disclosure, share of revenue from licenses, research contracts, etc.),**
- **Rules for consulting (time limits on consulting, how income is distributed between the academic, research group, etc.),**
- **Nonfinancial incentives for researchers for different types of knowledge transfer (reputation, job promotion, etc.),**
- **Researcher permitted to temporarily work with a licensee/spinoff, firm involved in collaborative research (including maximum length),**
- **Presence and amount of supporting infrastructure for startups and spinoffs (incubator, science park, etc.),**
- **Presence of different types of financial support (funding for KTOs, seed funding, etc.),**

Supplementary policy metrics

- **Requirement or incentives for researchers to assist commercialisation (i.e., work with a licensee, research contract partner),**
- **Requirement for researchers to report invention disclosures,**
- **Presence of written rules or guidelines for licensing, including publicly available model contracts,**
- **Presence of flexible rules for licensing,**
- **Presence of written rules for the conditions for an exclusive or non-exclusive license,**
- **Policy for publication delays (including maximum length) to support patenting, licensing, or collaborative research,**
- **KTO or other public research organisation activities to promote IP or staff capabilities to the business sector.**

Appendix table 3: Metrics on knowledge transfer and its environment (Fielding, 2025)

MENU OF METRICS FOR KNOWLEDGE TRANSFER

INPUTS
What is needed to make things happen

- PRO's total research income
- % researchers KT active
- Size/ maturity of KT team
- No of RTTPs in KT team
- KT team costs
- IP/ Patent budget
- Value of financial resources applied eg POC, support funding
- % external income attracted for KT team/ activity
- No of innovation disclosures
- Capacity of facilities for KT (eg incubator/ science park)
- Overall value of investment capital available
- Volume and potential value of pipeline of developing projects
- Volume of internal/ external connections

KT ACTIVITY
Activities undertaken to transfer knowledge

Volume and revenue of:
-Collaborative research
-Contract research projects
-Consultancy projects
-Facilities access
-Knowledge Transfer schemes
-Professional Development
-Partner-led teaching
-Regional/ sector projects

- Patent applications
- IP licensing projects
- No of student projects
- No of company creation (at various stages)
- No of staff exchanges
- No of internships
- No of community/public engagement projects
- No of KTo-led networks

KT OUTPUTS
Direct properties arising

Volumen and revenue of:
-R&D agreements with partners
-Joint ventures
-Licenses executed (exclusive/ non-exclusive, software)
-Licenses to spin-outs
-New venture funds

- No of Patents granted
- % patentes licensed
- Prototypes produced
- Spin-outs created
- Start-ups created
- New Incubators established
- People trained
- Non-academic reports/ Publications
- Impact case studies from KT New projects won for region
- KT with SMEs/ regional orgs

OUTCOMES
Direct benefits created

- Jobs created/ retained
- Jobs in spin-offs
- Companies still trading after x years
- New products & services launched
- New technologies introduced to market
- Improved productivity & performance
- Costs avoided & saved
- Increased profits/ capacity in business
- Policy changes informed
- Sector growth
- New funding for region
- Value of investment attracted to spin-outs/ technology
- Equity value of venture portfolio

IMPACTS
Longer term changes in organisations or society

- National/ regional growth in BERD
- National/ regional growth in GDP
- % growth in tech ventures in region
- Internal culture change in PRO (eg % change of academics involved in KT, net promoter score, prominence of KT in org strategy)
- Reputation of PRO
- Change in value added (Health improvements)
- SDG improvements
- Cultural shift in society
- Changes in awareness/ understanding/ attitudes/ behaviour (through surveys)

NB. These metrics have been identified in various national and international reports on KT metrics. All can be collected at different time intervals and be analysed according to size and location of partners and total portfolio vs annual incidence. They could also be calculated as a function of size and volume of research portfolio.

THE ENVIRONMENT FOR KE - MENU OF METRICS

PRO CONTEXT

- Overall research expenditure of PRO
- Value and volume of contract & collaborative research and partner-engaged teaching in PRO
- Overall no of researchers in PRO
- % researchers in PRO who are KT active
- Volume of non-academic joint publication
- PRO engagement in business/ sector networks
- Value of direct/ indirect funding for KTO
- Value of funding for KT activity
- KT is a key part of the overall PRO strategy
- Clear policies and processes for KT activity
- Clear access points for external engagement
- Recognised training programmes for KT staff
- Nos of KT staff with RTTP accreditation
- Academic recruitment and promotion criteria recognise KT activity and entrepreneurship
- Student and academia entrepreneurship progs
- Evaluation and celebration of excellence in KE activity by PRO

NATIONAL/ REGIONAL CONTEXT

- Value of BERD in country/ region
- Value of business expenditure on high-level training in country/ region
- Tax incentives for research/ training
- IP regime in country/ region (professors' privilege)
- Value/ availability of innovation programmes in country/ region
- Value of public funding for KT
- Value of support for SHAPE activity
- Value of investment capital available for innovation-led ventures
- Accessible innovation ecosystem support (mentors/ CEOs/ advisers, service providers)
- Innovation facilities (Science Parks/ incubators etc)
- Active innovation community surrounding PRO
- Key business sectors linked to PRO interests
- Strong business/ sector support mechanisms

Source: Fielding, S. (2025), KT metrics: a menu of inputs, activities, outputs, outcomes, and impacts | Sean Fielding, RTTP posted on the topic | LinkedIn

7.2.Indicators by country

Appendix table 4: Sources by country

	Data collection	Owner	Population	Freq.	Sources
ASTP	ASTP 2024 Annual Survey	ASTP	KTOs	Annual	https://astp4kt.eu/kt-metrics
BE	a	Industrieel Onderzoeksfonds, IOF			https://codex.vlaanderen.be/Portals/Codex/documenten/1018147.html and https://www.ewi-vlaanderen.be/onze-opdracht/excellerend-onderzoek/financiering-van-onderzoek/industrieel-onderzoeksfonds#toc-financiering
	a	Réseau Lieu			https://reseaulieu.be/
BG	Na				
CH	Switt Report	Swiss Technology Transfer Association, SwiTT	Universities, universities of applied sciences, research institutes	Annual	https://switt.ch/switt-reports
CZ	Na				
DE	Bericht zur Trans-ferallianzumfrage 2023	TransferAllianz e. V.	Scientific institutions and transfer service providers	na	https://drive.google.com/file/d/1Aq6cEa1Jh02Rk26c7SxPfUJ9m25PJu4q/view
DK	Questionnaire for Commercialization Statistics	Danish Agency for Higher Education and Science	Universities, hospitals	Annual	https://ufm.dk/forskning-og-innovation/statistik-og-analyser/kommercialiseringsstatistik
ES	Encuesta I+TC+D	RedOTRI	KTOs, universities	Annual	https://idi.crue.org/redes-de-trabajo/red-otc/grupos-de-trabajo/grupo-de-trabajo-de-indicadores/ https://idi.crue.org/wp-content/uploads/2025/03/20250317_Resultados-Encuesta-itcd-2023_LOGO-NUEVO-para-publicar.pdf
	Spanish Science Technology and innovation system	Ministerio de Ciencia, Innovación y Universidades	KTOs (Universities, hospitals,	Annual	https://www.ciencia.gob.es/en/Ministerio/Estadisticas/SICTI.html

			research centres)		
FR		Réseau SATT	KTOs	Annual	Not published
IE	Knowledge Transfer Ireland	Knowledge Transfer Ireland			https://www.knowledgetransferireland.com/About_KTI/Glossary-of-Terms/ https://www.knowledgetransferireland.com/Reports-Publications/Annual-Knowledge-Transfer-Survey-2024.pdf
IT	Netval	Netval	KTOs, universities	Annual	https://www.netval.it Netval (2024). Ventiduesima indagine annuale (relativa all'anno 2023). Netval (2024). Ancora a due velocità. XIX Rapporto Netval. https://netval.it/en/reports-documents-area/rapporto-netval-2024
	Research Hospitals (IRCCS)	Ministry of Health	KTOs, Research Hospitals (IRCCS)	Annual	Not published
LU	Na	Ministry of Research and higher education	Universities, academies, research institutes, higher vocational schools	Annual	Rapports d'évaluation - Ministry of Research and Higher Education - The Luxembourg Government https://mesr.gouvernement.lu/en/dossiers/dossiers/rapports-d-evaluations.html
PL	Na	Polish Association of Centers for Technology Transfer (PACTT)	Universities, academies, research institutes, higher vocational schools	Na	https://pactt.pl/en PACTT (2023). Raport o stanie polskich jednostek naukowych współpracujących z otoczeniem gospodarczym w obszarze transferu technologii (2021). Warszawa. DOI: 10.32062/20231201, ISBN: 978-83-968119-6-7.
SE	Na				
TR	Research Universities Index	Higher Education Council (YÖK)	Higher education (HE) providers	Annual	https://tubitak.gov.tr/tr/kurumsal/politikalar/girisi

	Entrepreneurial and Innovative University Index	Scientific and Tech. Research Council of Türkiye (TÜBİTAK)			mci-ve-yenilikci-universite-endeksi
UK	HE - Business and Community Interaction Survey	HESA Jisc	Higher education (HE) providers	Annual	https://www.hesa.ac.uk/support/definitions/hebci https://www.hesa.ac.uk/data-and-analysis/business-community
AU/NZ	SCOPR® 2023 Survey of Commercialisation Outcomes from Public Research.	Knowledge Commercialisation Australasia	Research organisations	Annual	https://www.techtransfer.org.au/scopr/ https://www.techtransfer.org.au/public/232/files/KCA_SCOPR_survey_report_20242023_data_HI-RES.pdf
US	AUTM Licensing Activity Survey	AUTM	Academic institutions, research hospitals, non-profit research organisations	Annual	https://autm.net/surveys-and-tools/surveys/licensing-survey, https://autm.net/AUTM/media/Surveys-Tools/Documents/AUTM-FY24-Licensing-Survey-Definitions-Instructions.pdf
ZA		Department of Science, Technology and Innovation's National Intellectual Property Management Office (NIPMO)	KTOs at higher education institutions (public) and science councils	Variable	www.sarima.co.za Or www.nipmo.org

[a] No national survey, data collection by ASTP.

Appendix table 5: ASTP Survey

	Input	Output	Impact
Internal	1. KTO • age • number of PROs served • staff FTEs • staff FTEs by activities 2. Research expenditures 3. Research staff in FTEs 4. Expenditure for IP protection	1. # new contract research agreements with non-academic parties 2. # new collaborative research agreements with non-academic parties 3. # new consulting agreements with non-academic parties 4. Revenues from contract research agreements 5. Revenues from collaborative research agreements 6. Revenues from consulting agreements 7. # new invention disclosures 8. # new priority patent applications 9. # patents granted 10. # active patent families 11. # active patent families licensed or optioned 12. # new LOAs • research materials • patents • software licenses • options • assignments • others 12. Revenues from commercialisation of IP • from patent licences • from cashed-in-equity	
External		1. # new spin-offs 2. # new start-ups 3. # active spin-offs	1. # employees of spin-off companies [Impact stories]

Source: ASTP survey questionnaire.

Appendix table 6: BE – Belgium

Réseau LiEU (French Speaking Part)

	Input	Output	Impact
Internal	[Data on KTO resources and the university's research efforts are also collected, but with less commitment and therefore missing information.]	1. # new collaborative research agreement with third parties 2. # contracts with private companies 3. # new patent applications 4. # new LOAs [5. revenues from contract research agreements] [6. # new invention disclosures] [7. # patents granted]	
External		1. # new spin-offs 2. # active spin-offs 3. # companies collaborating with a research unit	

Note: Additional data in brackets is collected by Réseau LiEU but not as part of its formal obligations towards the regional funders.

Source: Réseau LiEU

Industrial Research Fund (Industrieel Onderzoeksfonds, IOF)

	Input	Output	Impact
Internal	1. # share of doctoral degrees (moving average for associations) 2. # shares of publications and citations (moving average for associations) • publications • citations 3. share of income from the current and last EU Framework Programme contracts	1. average share of income from industrial contracts (for research and services with companies, clinical studies in the first and second clinical phases, and licenses) 2. # patent indicator (share of the association in the total number of granted USPTO patents, EPO patents, and published PCT patent applications).	
External		1. share of spin-off companies	

Source: IOF Besluit 2024,
https://codex.vlaanderen.be/Portals/Codex/documenten/1018147.html

Appendix table 7: BG – Bulgaria

	Input	Output	Impact
Internal	1. KTTO - organisation structure and governance 2. University policies on outreach 3. University policies on technology transfer 4. # articles published in Web of Science/Scopus journals 5. # doctoral theses 6. # new competitive grants for research, acquisition and maintenance of scientific equipment 7. Revenues from acquisition and maintenance of scientific equipment contracts • private national, • private foreign • public national, • public foreign	1. # collaborative or contracted projects • private national, • private foreign • public national, • public foreign 2. Revenues from collaborative or contracted research • private national, • private foreign • public national, • public foreign 3. # new priority patent applications 4. # new patents granted 5. # PCT extensions 6. # new industrial property protection agreements, utility models, biological materials and plant varieties, software and database records, trademarks 7. # industrial PhD theses 8. # new industrial property exploitation agreements 9. Revenues from licencing agreements or patents sold 10. Revenues from technical support, service or expertise contracts • private national, • private foreign • public national, • public foreign 11. Revenues from sales or dividends of shares in start-ups	1. # faculty with leave of absence to work in start-ups 2. # faculty with part-time employment contracts in start-ups
External		1. # new start-ups (spin-outs, spin-offs, spin-in) 2. # start-ups with equity	1. # start-ups acquiring capital; 2. Capital raised by start-ups; 3. # employees in start-ups 4. # university graduates employed in start-ups 5. Revenues of the start-ups

			6. # PhD graduates in industry with an industrial PhD thesis

Appendix table 8: CH – Switzerland

	Input	Output	Impact
Internal	1. University hospital included 2. KTO • age • activities • staff FTEs • staff FTEs for TT/admin. 3. Patenting & legal costs • spent • invoiced to comm. partners	1. # new research contracts • with SMEs • with large firms • with public entities • with multiple inst. 2. Revenues from research contracts 3. # new other TT contracts (NDA, MTA, consulting, sponsoring, donations etc.) 4. # new invention disclosures 5. # new priority patent applications 6. # active patent cases 7. # new LOAs • with SMEs • with large firms • with public entities • with multiple inst. • including equity 8. # active LOAs • yielding revenues • yielding running royalties	
External		1. # new start-ups • with LOA (spin-offs) • without LOA • with equity	1. # new licensed technologies that became available for consumer or commercial use [Impact stories]

Source: SwiTT reports (https://switt.ch/switt-reports)

Appendix table 9: CZ – Czech Republic

	Input	Output	Impact
Internal	1. Public grants and subsidies for research and innovation/knowledge valorisation[a] • from national sources • from foreign sources • from private sources 2. Expenditures on industrial property protection 3. # research personnel (FTE) 4. # staff in the system supporting innovation/knowledge valorisation and entrepreneurship (FTE)[b] 5. Dedicated KTT person/office 6. Targeted educational and motivational activities supporting proactivity, general entrepreneurship and creativity (not just company formation) 7. Incorporation of the system for supporting innovation/knowledge valorisation in internal regulations 8. Investment tools (support for PoC, pre-seed, seed)	1. # research/service contracts 2. # collaborative research 3. # collaboration agreements with public/civil society entities 4. Intellectual property • know-how 5. # IP protection tools (applied industrial rights) 6. # reported inventions/ employee works 7. # new LOAs 8. # consultancy contracts 9. Revenues from • licensing industrial rights and know-how, • providing research services, • collaborative research, • consulting, • spin-off companies' profits • the sale and licensing of spin-offs	
External	1. Dedicated legal entity authorised to establish spin-off companies	1. # new spin-offs 2. # new start-ups 3. # new methodologies, legislation, etc. Investment tools (support for PoC, pre-seed, seed)	1. Demonstrable contribution to the development of public policies, methodologies, and legislation 2. Savings for households and public budgets 3. Revenue of spin-off companies 4. # employees of spin-off companies 5. # companies surviving etc.

[a] Items 1 to 3 in the list refer to data from the Annual Report on Research and Development (VTR 5-01 statistical form) for the Czech Statistical Office (ČSÚ)

[b] Items 4 to 7 refer to data from Modules 3 and 4 of the M2017+ evaluation methodology

Appendix table 10: DE – Germany

	Input	Output	Impact
Internal	1. Academic staff FTEs	1. # new contracts with industry (research, consulting, infrastructure use etc.) 2. Revenues from contracts with industry 3. # new knowledge transfer contracts with non-economic/scientific org. 4. # new priority patent applications 5. # new LOAs 6. Revenues from LOAs	
External		1. # new spin-offs 2. # new start-ups	

Appendix table 11: DK – Denmark

	Input	Output	Impact
Internal	1. KTO staff 2. Operating expenses of the institution for technology transfer	1. # new invention disclosures • non-protectable software • joint inventions • total 2. # new priority patent applications 3. # new patents issued • joint patents issued 4. # new license agreements • for patent rights, utility models, know-how • for software 5. # new licensees (companies) 6. # new IP transfer agreements • for patent rights, utility models, know-how • for software 7. # new IP buyers (companies) 8. # new option agreements 9. # new optionees (companies) 10. # new revenues from LOA • from patents • from software • from transfers of patents • from transfers of software • from options • from inventors • from sales of equity • from dividends (spin-out equity) • from reimbursements of patenting costs 11. # active patents 12. # portfolio of valid LOA • generating revenue 13. # companies with equity or stock options owned by the inst. 14. # research collaboration agreements • With private companies • With public authorities	
External		1. # new spin-outs • With equity held by the institution 2. # new priority patent applications filed by companies on the institution's inventions 3. # new companies filing priority patent applications on the institution's inventions 4. # new patents issued to companies on the inst. inventions 5. # new companies obtaining patents on the institution's inventions	

Appendix table 12: ES – Spain

RedOTRI

	Input	Output	Impact
Internal	1. Research and development expenditures 2. # faculty • by field • by gender • active in research • active in transfer • with PhD • potential and total six-year terms 3. # PhD Students and early-stage researchers 4. Role of TTO staff in PhD Students and Early-Stage Researchers 5. University budget 6. KTO staff • by gender • by category • by employment 7. University policies on outreach 8. University policies on transfer 9. # articles published in Web of Science journals 10. # doctoral theses 11. Expenditures for registration and maintenance of patents • by licensee • by source 12. # press releases by the university • on research results • on knowledge transfer results	1. # new collaborative projects with company involvement • by origin (geog.) • private • public 2. Revenues from collaborative research • by origin (geog.) • private • public 3. # new non-collaborative projects • by origin (geog.) • private • public 4. Revenues from non-collaborative research • by origin (geog.) • private • public 5. # new other competitive research grants • by origin (geog.) • private • public 6. Revenues from other competitive research grants • by origin (geog.) • private • public 7. # new invention disclosures 8. # new priority patent applications • with co-ownership 9. # inventors by gender 10. # PCT extensions 11. # new patents granted 12. # active patent families • licensed 13. # new industrial property protection agreements, utility models, biological materials and plant varieties, software and database records, trademarks 14. # new intellectual/industrial property exploitation agreements	1. # faculty with leave of absence to work in spin-offs 2. # faculty with part-time employment contracts in spin-offs

		• by type of agreement (licences, options, assignments, MTAs) • by nature of the IP • exclusive, • by licensee 15. # active IP agreements yielding revenues 16. Revenues from operating agreements • by nature of the IP 17. # new R&D contracts • by origin (geog.) • private • public 18. Revenues from R&D contracts • by origin (geog.) • private • public 19. # technical support and service contracts • by origin (geog.) • private • public 20. Revenues from technical support and service contracts • by origin (geog.) • private • public 21. # university-company chair agreements • by origin (geog.) • private • public 22. Revenues from university-company chair agreements • by origin (geog.) • private • public 23. # Principal investigators of competitive projects • by gender 24. Researchers signing contracts (R&D, IP, technical support, services) • by gender 25. Revenues from sales or dividends of shares in spin-offs 26. Revenues from contracts and agreements (R&D, rentals, services etc., excluding LOAs) with spin-offs	

		27. # scientific dissemination actions 28. # faculty and staff representing the university in scientific dissemination actions (events, talks, workshops, conferences, fairs, etc.)	
External	1. # new grants for acquisition and maintenance of scientific equipment • by origin (geog.) • private • public 2. Revenues from acquisition and maintenance of scientific equipment contracts • by origin (geog.) • private • public 3. # new HR grants (training, hiring and mobility of researchers, tech. staff) • by origin (geog.) • private • public 4. Revenues from HR grants (training, hiring and mobility) • by origin (geog.) • private • public	1. # new start-ups • by field, • degree • supporting faculty 2. # new spin-offs • by field of supporting faculty 3. # spin-offs active after 5 years • by field 4. # spin-offs with equity 5. # spin-off supporting faculty • by gender	1. # spin-offs acquiring capital 2. Capital raised by spin-offs 3. # employees in spin-offs 4. # university graduates employed in spin-offs 5. Revenues of the spin-offs

SICTI

	Input	Output	Impact
Internal	1. Research and development expenditures 2. # faculty • in transfers 3. # researchers 4. KTO staff 5. Expenditures for IP protection	1. # industrial PhD students 2. # portfolio of inventions (patents, utility models and plant varieties) 3. # invention exploitation agreements (LOAs) 4. Revenues from exploitation agreements (LOAs) 5. Revenues from exploitation agreements with other IP (industrial designs, trademarks, software, databases etc.) 6. # registered protocols, catalogues, orphan drugs, other registrations 7. # contracts for R&D, services, clinical trials, observational studies 8. Revenues from contracts for R&D, services, clinical trials, observational studies 9. # agreements without economic content regarding transfer (NDA, MTA, framework agreements, MOU) 10. # professorship and sponsorship agreements (chairs, industrial doctorates, sponsorships, patronage etc.) 11. # invention disclosures 12. Revenues from spin-offs	
External		1. # spin-offs • age • termination 2. # spin-off shareholders	

Appendix table 13: FR – France (SATT)

KPI in bold characters

	Input	Output	Impact
Internal	**1. KTO staff** • **Total workforce (permanent and fixed-term, in FTE)** • **Maturation/transfer workforce (in FTE)** • **Service workforce (in FTE)** • **Support functions workforce (in FTE)** • **Incubation workforce (in FTE)** **2. Expenses/charges** • **related to maturation/ transfer activities** • **related to incubation activities** • **related to service activities**	**1. # invention disclosures** **2. # patent applications** **3. # other IP assets applications** **4. # IP assets managed** • **priority patents** • **know-how** • **software** **5. # new licences and assignments** **6. # "maturation" projects (early-stage transfer projects)** **7. # (spin-off) incubation projects** **8. Costs and revenues from service activities** **9. Revenues from licenses and cashed-in equity** • **passed on to the university/PRO and inventors** **10. Share of licensing revenue collected relative to direct maturation costs** **11. Licensing Revenue collected / revenue invoiced** **12. Share of expenses allocated to maturation projects** **13. Share of patents and other intellectual property transferred** **14. Share of maturation projects transferred**	
External		**1. # new spin-offs**	**1. Funds raised by spin-offs**

Source: Agence Nationale de la Recherche for 13 SATTs.

Appendix table14: IE – Ireland

	Input	Output	Impact
Internal	1. Research expenditures 2. KTO age	1. Share of research expenditures by source • Industry • Non-commercial entity (excluding government funding agencies and EU) • Government funding agencies (exclude EU) • EU sources • Other (please specify) 2. # research collaboration agreements • wholly funded by industry • partly funded by industry • with Irish SMEs • with Irish large companies • with Irish MNCs • with Irish non-commercial entities • with overseas SMEs • with overseas large companies • with overseas MNCs • with overseas non-commercial entities 3. # innovation vouchers with industry 4. #new consultancy agreements • with industry • with non-commercial entities 5. # R&D agreements (res. collaboration, vouchers) 6. # repeat business (collaboration & contract research agreements) 7. # new invention or software disclosures • sole • joint with other org. 8. # new priority patent applications 9. # new patents granted 10. # active patent families 11. # new LOAs executed • licences • options • assignments	

		• for patented IP • for software • for trade secrets • for copyrights • for design rights • for research materials • for other (e.g. know how, etc.) • with Irish SMEs • with Irish large companies • with Irish MNCs • with Irish non-commercial entities • with overseas SMEs • with overseas large companies • with overseas MNCs • with overseas non-commercial entities 12. # contracts for use of facilities and equipment	
External	1. Commercialisation fund support	1. # new spin-outs 2. # active spin-outs 3. # spin-outs merged or acquired 4. # start-ups • high potential start-ups (HPSU) • without LOA • with equity	1. # market launches of products or services in year based on licence 2. # new funded spin-outs (with external investment) [Impact stories]

Sources: Knowledge Transfer Ireland. Annual Knowledge Transfer Survey 2023; KT Boost Definitions and Notes for submitting metrics.

Appendix table 15: IT – Italy

Italian Public Research Organizations (PROs) Surveys

	Input	Output	Impact
Internal	1. Total annual budget 2. # doctoral/PhD students 3. # FTEs engaged in research activities 4. Existence of organisations • medical school • science park • business incubator 5. Research funding • total • central government • region • European Union • third parties, • University/ • donations • other 6. Total ordinary funding 7. KTO • age • form • decentralised offices • location 8. KTO staff • total FTE • by employment contract (permanent, non-permanent) • by time • by skills • by seniority 9. KTO budget • by source 10. Expenditure for IP protection • by applicant/assignee	1. # new invention disclosures 2. # IPR priority application filed by type (patents, plant varieties, utility models, software/copyright, trademarks, other) 3. # new patent nationalisations • by patent office 4. #new patents granted • by patent office 5. # active patents • by patent office • under licence/option • subject to PoC initiatives 6. # new patent applications following commissioned research contracts 7. # new research contracts signed following a patent transfer/license 8. # new licenses and options • by partner type (age, location) • exclusive licenses • generating returns • related to a patent 9. # active license options 10. # new assignments 11. # new confidential agreements 12. # new material transfer agreements 13.# new data sharing/transfer agreements 14. # new inter-institutional agreements (IIAs) for patent co-ownership management	[no impact metrics, but survey questions on importance and measurement of • social impact • environmental impact]

	11. Existence of incentives for knowledge transfer • monetary awards • additional research funds • financial incentives for spin-off companies • career advancement • other • financial incentives • 'sabbaticals' to work in spin-off companies 12. Importance of KTO services • negotiations • patenting process (disclosure, patent application, etc.) • identifying business opportunities • business plans • academic spin-offs • creation of start-up companies • obtaining external financing • licensing activities • after spin-off establishment 13. Entrepreneurship education/ training courses 14. # participants in entrepreneurship courses • students/graduates • PhD students/PhDs • researchers	15. Revenues from IP contracts • from licenses/options • from new licenses/options • from new transfer agreements • from new plant varieties • from new software • from new trademarks 16. # donations • by source (foundations, companies, other) • by type of activity funded 17. Revenues from donations (breakdown see 15.) 18. Privately funded research contracts (breakdown see 15.) 19. Revenues from privately funded research contracts (breakdown see 15.) 20. Technical services (breakdown see 15.) 21 Revenues from technical services (breakdown see 15.) 22. Third-party training (breakdown see 15.) 23. Revenues from third-party training (breakdown see 15.) 24. Revenue from active clinical trial contracts related to an invention/patent of the PRO	

External	1. Entrepreneurship education/ training courses 2. Commercialisation fund support 3. Spin-off creation support	1. # new spin-offs 2. # active spin-offs • collaborating with the PRO and located in the same region • with participation of the PRO • owned by industrial companies • with participation from investors specialized in early stage financing 3. # spin-offs merged or acquired 4. # start-ups 5. Revenues from technical services (breakdown see 15.) 6. Third-party training (breakdown see 15.) 7. Revenues from third-party training (breakdown see 15.)	1. # spin-offs acquiring capital 2. capital raised by spin-offs 3. # employees in spin-offs 4. revenues of the spin-offs

Note: In addition to the metrics shown here, the questionnaires collect data on a broad set of policies and other issues which had to be left out from this overview.

Appendix table16: LU – Luxembourg

	Input	Output	Impact
Internal	1. Competitive and collaborative R&D funding: • total, • competitive national, • competitive international, • collaborative 2. Scientific publications • # refereed journal publications per FTE research personnel • # top 10 % publications • # joint publications in peer-reviewed scientific journals (with co-authors from other national research institutions)	1. # new priority patent applications 2. Public-private partnership (PPP) positions: # PhD students and post-docs belonging to a project where the funding commitment of the private partner is at the least 25 % per year 3. Number of paying licenses (licenses signed or active, with impact)	
External		1. # active spin-offs	

Appendix table17: PL – Poland

	Input	Output	Impact
Internal	1. KTO • age • staff FTEs (annual average) • staff FTEs by activities (%) 2. Research expenditures of university/PRO (excluding land and buildings) 3. Expenditure of university/PRO on patent management (personal costs, external costs, patent fees, etc.) * further questions about Special Purpose Companies (in Poland in universities invest in spin-offs it has to be done via University owned companies) and Academic Entrepreneurship Incubators. *i. # of pre-implementation (PoC) projects financed in the "Incubator of Development" project* *ii. # of pre-implementation projects financed in the "Incubator of Development" project, in which a commercialisation agreement (sale or licence) was concluded*	1. # new contracts with non-academic parties 2. # new collaborative research agreements with non-academic parties 3. # new contract research and consultancy services agreements with non-academic parties 4. # new NDAs with non-academic parties 5. # new MTAs with non-academic parties 6. # new results disclosures (overall + # know-how disclosures + # software or copyrights disclosures) 7. # new applications to Polish PO • priority patents • utility models • industrial designs • topography of integrated circuits • trademarks 8. # new applications to EPO • patents and design patents • industrial designs and trademarks 10. # applications in PCT and national/regional phases • patents, • utility models, • industrial designs, • topography of integrated circuits • trademarks 11. # new plant varieties application • Polish office (COBORU) • Community Plant Variety Office (CPVO) 12. # new patents granted (+ the same for other forms of IP protection mentioned above) 13. # active patents (+ the same for other forms of IP protection mentioned above) (at the end of year) 14. # active patent families (at the end of year) 15. # new license agreements 16. # active license agreements (at the end of year) 17. # assignment of rights agreements 18. # assignment to the inventor-employee agreements	[Impact stories of successful commercialisation]

		19. Revenues from commercialisation of IP (direct commercialisation: licenses, assignment, etc) **20. Revenues from indirect commercialisation – spin-offs (revenues received by university/PRO directly, dividend)** **21. Revenues from research services** ***i. # of patent applications filed as a result of R&D work performed under the "Incubator of Development" project (Polish/Foreign)*** ***ii. # of patent applications filed with regard to positive impact on environmental aspects or the 6Rs principle, resulting from R&D work carried out under the "Incubator of Development" project*** ***iii. # of forms of cooperation established between the research organisation and the business environment in the form of 1) assignment contracts, 2) licensing agreements, 3) research service contracts and 4) others which generate income for the research organization*** ***iv. Revenues from the sale or licensing of R&D results generated within the research organisation in connection with the "Incubator of Development" project***	
External		**1. # new spin-offs** **2. # active spin-offs at (the end of year)** **3. # exits of university from spin-offs** **4. # new start-ups (companies established for commercialisation of innovative ideas or technologies by the employees, students or alumni)** ***i. # of spin-off companies created with a view to technology transfer as a result of the "Incubator of Development" project***	**1. # employees of spin-off companies (at the end of year)**

The indicators in the table come from the study "State of Polish scientific units cooperating with the business environment in the area of technology transfer (2021)"[5] which was conducted by a working group in PACTT (Polish Association of Centers for Technology Transfer) and a research team from the Warsaw University of Technology. The motivation for the study came from the need to supplement data on technology transfer in Poland and the need to present the scope of activities in the area of technology transfer,

[5] **PACTT (2023). Raport o stanie polskich jednostek naukowych współpracujących z otoczeniem gospodarczym w obszarze transferu technologii (2021). Warszawa. DOI: 10.32062/20231201, ISBN: 978-83-968119-6-7.**

since there is no official evaluation or survey that would collect these data on governmental level. The study collected data for year 2021 and was published in 2023. It has not been repeated due to insufficient resources and as the planned official ministerial evaluation has not been implemented.

Additionally, in italic and lowercase Roman numbers, the indicators used by the Ministry of Science and Higher Education where added. These indicators are reported among other indicators by the KTOs participating in the “Incubator of Development” programme that supports KTO activities, started in 2025 until 2028.

Appendix table 18: SE – Sweden[a]

	Input	Output	Impact
Internal	1. Holding company 2. Innovation office (KTO) • age • services • staff FTEs	1. # new invention disclosures 2. # new priority patent applications 3. # innovation projects[b] 4. # publications with external non-academic org. 5. # co-affiliations with external non-academic organisations 6. # industrial doctoral students	
External		1. # new start-ups[c] • with equity • based upon knowledge generated by the PRO	1. Revenue of start-ups 2. Tax revenue generated by start-ups 3. Employment of start-ups [Impact cases]

[a] Note by the Swedish colleagues: No overall Swedish knowledge transfer survey exists. Several initiatives to collect information by universities and organisations have been identified and from those, indicators are listed to provide an illustration of the Swedish situation.
[b] VFT Innovation projects that has been validated with funding from Vinnova regarding IP, market or technical validation.
[c] Startup includes student startups, spin-off and spin-outs.

Appendix table 19: TR – Türkiye

	Input	Output	Impact
Internal	1. # scientific publications 2. # citations 3. # Number of Projects Funded by R&D and Innovation Support Programs 4. Number of R&D and Innovation Projects Conducted through University-Industry Collaboration 5. Number of R&D and Innovation Projects Conducted through University-Industry Collaboration under Public Funds 6. # national and international science awards 7. # PhD graduates 8. # PhD students • International	1. # industrial doctoral students (in the Tübitak 2244 industrial PhD program) 2. # patent applications • national • international 3. # patents granted • national • international 4. # national utility model applications and registrations 5. # new R&D and innovation projects with university–industry collaboration 6. Revenues from R&D and innovation projects with public funding and industry collaboration 7. # license agreements • patents • utility models • industrial designs 8. # licensed technologies 9. # nat. & internat. patent registrations in university-industry collaboration 10. # nat. & internat. patent registrations in international collaborations	–
External		1. # active student/graduate start-ups 2. # active spin-offs	1. Revenues of student/ graduate start-ups 2. Revenues of spin-offs

Appendix table 20: UK – United Kingdom

	Input	Output	Impact
Internal	1. Total IP costs	1. # new collaborative research contracts 2. income from new collaborative research contracts 3. # new contract research contracts • SMEs, • other commercial businesses • non-commercial organisations 4. income from new contract research contracts • SMEs, • other commercial businesses • non-commercial organisations 5. # new consulting contracts • SMEs, • other commercial businesses • non-commercial organisations 6. income from new consulting contracts • SMEs, • other commercial businesses • non-commercial organisations 7. # new contracts on services related to facilities and equipment • SMEs, • other commercial businesses • non-commercial organisations 6. income from new contracts on services related to facilities and equipment • SMEs, • other commercial businesses • non-commercial organisations 7. Revenues from Continuing Professional Development (CPD) courses and Continuing Education (CE) • SMEs, • other commercial businesses • non-commercial organisations • individuals 8. Total learner days of CPD/CE courses delivered 9. # new invention disclosures 10. # new priority patent applications 11. # new patents granted 12. # active and live patents 13. # patents filed by an external party naming the HE provider as a co-applicant or staff as a named inventor 14. # LOAs • assignments (out) • Exercised option agreements	

		• Licences to spin-outs • Income-generating MTAs • SMEs, • non-SME commercial • non-commercial • for non-software • software-only 15. Revenues from LOAs • assignments (out) • Exercised option agreements • Licences to spin-outs • Income-generating MTAs • SMEs, • non-SME commercial • non-commercial • for non-software • software-only • other IP revenues • total 16. Academic staff time for designated public events for social, community and cultural engagement • Public lectures • Performance arts (music, dance, drama, etc.) • Exhibitions (galleries, museums, etc.) • Museum education • Other • chargeable events • free events 17. Attendees of designated public events for social, community and cultural engagement • Public lectures • Performance arts (music, dance, drama, etc.) • Exhibitions (galleries, museums, etc.) • Museum education • Other • chargeable events • free events	
External		1. # new spin-outs 2. # active spin-outs • with HE provider ownership • other 3. # new staff start-ups 4. # new student start-ups 5. # new social enterprises	1. Estimated current employment of all active firms (FTE) • Spin-outs with some HE provider ownership • Other spin-outs • Staff start-ups • Student start-ups • Social enterprises

			2. Estimated current turnover of all active firms • Spin-outs with some HE provider ownership • Other spin-outs • Staff start-ups • Student start-ups • Social enterprises 3. Estimated external investment received • Spin-outs with some HE provider ownership • Other spin-outs • Staff start-ups • Student start-ups • Social enterprises 4. Revenues from regeneration funding • European Regional Development Fund (ERDF) • European Social Fund (ESF) • UK Government regeneration funds • UK shared prosperity fund and dev. agencies • Other regeneration grants

Sources: https://www.hesa.ac.uk/support/definitions/hebci, https://www.hesa.ac.uk/collection/c23032/hebci_b_table_4

Appendix table 21: AU/NZ – Australia & New Zealand

	Input	Output	Impact
Internal	1. KTO Staff (commercialisation) FTE 2. Total gross income for research	1. # new invention disclosures 2. # new priority patent applications 3. # active patent families 4. # new design applications 5. # new software and apps 6. # new confidential know-how or trade secrets 7. # new copyright specifically for commercialisation purposes 8.# new plant breeders rights applications 9. # active non-patent IP rights held 10. # new Licensing, Option or Assignment agreements (LOAs) 11. # total active LOAs held 12. Total research commercialisation income from all LOAs and patented or non-patent IP 13. Total value of equity in all spinout / start-up companies owned by institution.	
External		1. # new spin-outs/start-up companies incorporated 2. # active spin-outs/start-up companies	

Appendix table 22: USA – United States of America

	Input	Output	Impact
Internal	1. KTO • age • licensing staff FTEs • other staff FTEs 2. Research expenditures • total • from federal government • from industry • for clinical trials 3. Legal fees for patents and copyrights • total • reimbursed by licensees	1. # invention disclosures • total • with support from a federal grant • including at least one woman • returned to inventors 2. # total patent application filed to USPTO 3. # new patent applications filed • total • including one woman • provisional • utility applications • non-US • PCT applications • plant patent applications 4. # US patents issued 5. # licenses • total • including equity 6. # licenses to patents • exclusive • non-exclusive 7. # options 8. # copyright licenses • exclusive • non-exclusive 9. # other licenses • plant/seed • research/biological materials • other • exclusive • non-exclusive 10. # software titles made available via open source licenses 11. # licenses and options • with small companies • with large companies • active • yielding income • yielding running royalties • yielding more than 1m US-$ income 12. # patent license amendments	

		13. total license income • from running royalties • from cashed-in equity • other types 14. # inter-institutional agreements (IIA) 15. license income paid to other institutions out of IIA	
External		1. # new start-ups dependent on a license • primary place of business in home state • operational • operational and raised institutional equity funding • newly non-operational • with institutional equity	1. # licensed technologies available for use

Supplemental questions:

Q10.1 How many of your executed licenses/options with startups in 2024 included SPECIAL TERMS for faculty inventors from your institution who became startup founders?

NOTE: The number of licenses/options with special terms should be less than or equal to your licenses/options with startups (see Q8.1). Special terms may include waiving or deferral of certain fees or expenses or other unique or favourable parameters for royalties or equity.

Q10.2 Which DATABASE service provider does your office use for managing your licensing and IP data?

Q10.3 With regard to disclosures, does your office track data on inventors' gender identity?

Q10.4 With regard to disclosures, does your office collect data on inventors' race / ethnicity?

Q10.5 With regard to patent applications, does your office track data on inventors' gender identity?

Q10.6 With regard to patent applications, does your office collect data on inventors' race / ethnicity?

Q10.7 Please provide any feedback on specific questions or ways in which we may improve the survey. What additional questions, if any, should we be asking?

Appendix table 23: ZA – South Africa

	Input	Output	Impact
Internal	1.KTO • age • form • staff FTEs • staff FTEs by employment • staff FTEs by gender • staff population group • staff FTEs by qualification • staff FTEs by years of experience • services (see no. 7 below the table) 2. KTO expenditures • intellectual property • litigation • operations 3. Reimbursement (from licensing) of IP expenses 4. R&D expenditure 5. Clinical trial expenditure 6. New institutional seed funding	1. # new invention disclosures • undisclosed information / trade secrets 2. # disclosures [technologies] managed in the portfolio 3. Existence of patent portfolio 4. # new patent applications • filed as provisional South African • filed as complete South African • filed abroad (incl. PCT) 5. # new patent applications abandoned, for reasons: • Supporting data unavailable • Lack of funding resources • Search revealed lack of novelty or inventiveness • Assessment revealed lack of techno-economic viability • Market research revealed insufficient commercial opportunity • Other 6. # granted patents • by region/country 7. # active patent families with at least one jurisdiction granted 8. # technologies relying on only a granted patent in South Africa 9. Existence of trademark portfolio 10. # new trademark applications 11. # new trademarks granted • in South Africa • total # granted trademarks managed 12. Existence of Design portfolio 13. # new Registered Design applications 14. # granted Designs registered • in South Africa 15. Existence of Plant Breeders' Rights portfolio 16. # new Plant Breeders' Rights applications 17. # new Plant Breeders' Rights granted • in South Africa	

		18. # Plant Breeders' Rights families 19. Existence of IP transactions 20. # options granted • To SA entities 21. # new licences executed • in South Africa total • in South Africa exclusive rights • in South Africa non-exclusive rights • abroad total • abroad exclusive rights • abroad non-exclusive rights 22. # new assignments • With SA entities # IP transactions with SA entities: • with spin-outs • with other SMEs • with large company • with Black-owned entities 23. # actionable disclosures licensed (active, expired, terminated) since 2010 as at certain date, of these: • # active • # assigned 24. % actional disclosures ever commercialised • through a license • through an assignment 25. IP transaction revenue • From running royalties • Regular fixed license fees • Once-off license fees • IP Sale of assignment • cashed-in equity from spin-offs • dividends 26. # IP transactions yielding revenue 27. Revenues paid to IP creators or enablers 28. # IP creators or enablers receiving payments 29. # IP creators or enablers participating in spin-offs/start-ups • Receiving equity • Acting as directors	
External	1. New seed funds	1. # new spin-offs • with equity	1. Revenue of spin-offs

	• from Technology Innovation Agency • from other sources	• with (potential) IP transaction revenue • with equity and (potential) IP transaction revenue • located in the same province as institution 2. Total FTEs employed by all spin-off companies, of these • # that are IP Creators or enablers 3. # IP Creators/ enablers who support the company (technical consultant, advisory, panel, board member, etc.) 4. # IP Creators that received equity 5. # spin-offs formed since 2008 • non-operational • Operational For how many years	2. Employment of spin-offs 3. Existence of licensed actionable disclosures available for consumer (public) or commercial use 4. # licensed actionable disclosures available for consumer (public) or commercial use 5. # are commercially available in SA and other countries. 6. # have won international prizes or formal recognition 7. Impact Case Study

Additional questions on structures, activities, and policies (note that TTF would be the equivalent of a TTO - "technology transfer function"):

1. Importance/functioning of internal and external KTT factors

- **(institutional) individual relationships, for example relationships with key innovative researchers**
- **support from institution's executive/management**
- **awareness amongst research staff about the importance of disclosing and managing IP**
- **externally focussed marketing channels such as websites, brochures, etc**
- **Calculation and distribution of benefit share**
- **TTO permitted by institution to appoint suitable TT staff**
- **TTO able to procure equipment**
- **TTO permitted by institution to negotiate and recommend an IP transaction**
- **TTO permitted by institution to establish a start-up/spin-out companies**
- **TTO permitted by institution to establish an incubator**
- **Access to incubation space (manged by the TTO or external) albeit not established by the TTO**
- **A consultative engagement on national technology needs and challenges**
- **national online platform to showcase technologies besides Innovation Bridge [an existing government platform]**
- **A national technology showcasing event**
- **international platform to showcase technologies**
- **TTO engagements with industry (formal and informal)**
- **access to incubation space (managed by TFF or available externally) albeit not established by TTF**

2. Complexity and efficiency of approval process for spin-offs

3. Complexity and efficiency of approval process for IP transaction

4. Policies in place, approved by the board, broadly adopted and in use, adequate and effective

- on IP ownership
- on calculation and distribution of benefit sharing
- on commercialisation of IP
- on creation of spin out companies
- on investment in spin out companies
- on allocation of equity to founders and institution in spin out company
- on Research Data Management
- on conflict of Interest
- on private work
- on research pricing and costing

5. Sufficient funding for technology development, upscaling, commercialisation including support for start-up/spinoff companies

6. Extent of funding required over the next 2 years

- Strategic review funding (market research, technical due diligence, techno-economic analysis, business model analysis)
- Business development (including marketing and excluding human capital development)
- To support TT operations
- Funding to engage specialist resources e.g. industry experts, mentors, etc.
- Seed funding
- Technology development / early commercialisation funding (post seed funding)
- Early-stage VC or commercialisation funding

Funding to incorporate start-up companies

- Support funding for incubation of start-up companies
- Series A funding
- Series B funding
- Due diligence of licensee or assignee
- Audit of licensee

7. Importance, capability and capacity within the TTF for key activities (or whether it is done elsewhere within the institution)

- receiving disclosures
- novelty searches
- managing process of IP registration, prosecution & maintenance
- Developing route-to-market or commercialisation strategy
- market research or analysis (incl. IP landscaping)
- Structuring and negotiating licence deals

Managing an institution incubator

- Contract management for R&D
- Contract management for technology transfer activities
- spinning out companies (registration, negotiation of IP transactions)

Developing and managing social impact or community-based projects

- Mentoring & other support of spin-offs
- Fund raising
- Statutory compliance (IPR Act disclosures, referrals, etc.)

- **Administering or managing proof of concept of seed funding**
- **conducting training and awareness workshops, etc.**

Dealing with open source, open access or open educational resources
Management of student entrepreneurship programmes
Engagement with industry – building networks for collaboration
Handling copyright matters
Handling requests for publication of R&D outputs by institution or collaborators

- **infringement monitoring**

Ensuring institution's freedom to operate

- **infringement litigation**
- **Benefit to IP Creators**
- **Does the institutional policy provide more than the minimum benefit share to IP Creators prescribed by the IPR Act? If so:**
    - **what percentage of gross revenue**
    - **What percentage of nett revenue**
- **Does the institutional policy provide for enablers to benefit from revenue accruing, if so:**
    - **Do the enablers share in the pool due to IP Creators or is there a separate provision for enablers**
    - **Do IP Creators decide on the portion accruing to the enablers?**

7.3.Indicator definitions

Appendix table 24: Knowledge Transfer Office (KTO) related metrics

Source	Indicator	Questions (or descriptions) and definitions
ASTP	KTO age	In what year was your KTO first established?
	KTO size	What is the total number of PROs your KTO serves?
	KTO staff	What was the total number of KTO staff in Full-Time Equivalents (FTEs) at the end of FY2021? One Full Time Equivalent (FTE) is equivalent to one employee working full-time, however the value is not necessarily equal to the actual number of employees. In case of part-time employees, FTE value will be less than the number of persons. E.g. two employees spending 30% of their work time each at the KTO will add up to 0.6 FTE.
	KTO services	What percentage (%) efforts of the total FTEs reported under Question 6 were directed towards the following activities: • Research Support including MTAs, CDAs, Collaborative Research Agreements, etc. • Commercialisation including IP protection and commercialisation, licensing, consultancy agreements • Entrepreneurship Support including training, business planning, incubation • Business Development including industry liaison • Others including project management and those not listed above
	KTO IP expenditures	What total amount was spent for IP protection by your KTO and PRO(s) combined (€)? Please include both the charges from external IP specialists as well as fees paid to IPR-granting authorities (e.g. the EPO) excluding internal staff-related costs, and co-funding from public funding.
BG	KTO form	Existence of KTO organisation structure and governance in accordance with the IP policy, Innovation, Exploitation and commercialisation strategy of PRO.
CH	KTO form	Does your institution have a dedicated office (TTO) / responsible person for TT activities?
	KTO age	If "Yes", In which year did the TT program start?
	KTO form	Is your Institution associated with a university hospital? [yes/no] Note: If "Yes", all figures given below should include the numbers of the hospital(s).
	KTO staff	Full time equivalents FTE employed in your TTO on Dec. 31st of last year Note: Please consider staff with main occupations {> 20%) in the area of technology transfer, such as 'Licensing Officers', 'Intellectual Property Managers', 'Technology Managers', or 'Research Contract Officers'. Please do not include project managers carrying out transfer projects. (e.g. if additional people outside your TTO but inside your institution are also working in technology transfer activities according to 3.1, special organisation with specific faculties, centralised/decentralised organisations) Of these FTE, how many were employed to work on

		(A) Technology transfer activities (B) Administration and general management
	KTO services	What are the activities of your TTO? [yes/no] • Research contracts (drafting, negotiating, controlling) • Evaluation, protection and management of IP • Commercialisation of IP (licensing, marketing) • Support and/or Coaching of start-up projects • Financial administration of research projects
	KTO IP expenditures	Amount spent by your TTO / institution on patenting costs and external legal fees Note: Amount should include all external costs for patent filing, prosecution, maintenance, litigation, expenses or costs for drafting or support in negotiation of contracts.
CZ	KTO form	Dedicated KTT person/office
	KTO staff	Number of staff in the system supporting innovation/knowledge valorisation and entrepreneurship (FTE)
	KTO regulation	Incorporation of the system for supporting innovation/knowledge valorisation in internal regulations
DK	KTO staff	5. Number of full-time equivalents (FTEs) employed in technology transfer at the end of the Period: Technology transfer includes activities related to the identification, documentation, evaluation, protection, marketing, and transfer of intellectual property rights, as well as the management of such rights in general. It also includes all activities related to the daily operation of technology transfer work, including assistance with negotiating research collaboration agreements, etc. Technology transfer personnel typically include administrative staff, but not technical and scientific staff. Only personnel employed by the institution are included, including individuals who perform technology transfer tasks for other institutions, such as an employee at a university who handles cases for a university hospital. The count also includes lawyers working on collaboration agreements as listed in indicator 19. Measurement unit is FTEs. Where an employee only works part-time or only spends part of their working time on technology transfer activities, only this proportion is included. The count is made on the last date of the Period. Personnel not included in technology transfer: • Technical and scientific staff working on the development or maturation of inventions. • Employees working on project management, fundraising, researcher networks, company networks, etc. • Personnel employed by another institution or external consultants performing technology transfer tasks for the institution.
	Operating expenses for technology transfer	6. What have the institution's operating expenses been for technology transfer (excluding salaries) during the Period? The institution's gross expenses for evaluation, rights protection, commercialisation, and use of consultants in connection with technology transfer are included. Operating expenses for technology transfer do not include:

		• The institution's internal costs for the operation of technology transfer work, such as salaries, other personnel costs, office maintenance, and general travel (overhead). • Payment for the use of personnel employed by other institutions covered by the Researcher Patent Act – e.g., if a hospital is serviced by personnel from the technology transfer unit at a university. • The institution's payment of remuneration to inventors according to § 12, subsection 1 of the Researcher Patent Act. • The institution's purchase or employment of technical and scientific staff for the development or maturation of inventions.
ES (RedOTRI)	KTO staff	KTO staff by functional orientation in FTEs: • Knowledge transfer management • Protection of industrial and intellectual property. • Contracts with companies and other entities (art. 83 LOMLOU). • R&D programmes for collaboration with companies and other entities. • Patent, know-how and software licences. • Creation of companies. • Financial management in knowledge transfer. • Dissemination, promotion and marketing. • Administrative support in transfer • Research management • Public aid, projects, infrastructure, grants and any other public funding except for collaboration with companies. • Management of own research and transfer programmes • Financial management of research • Administrative support in research management • Collection and analysis of information on research and transfer. • Other functions. Number of persons engaged in R&D&I management, classified by gender, category (technicians, administrative and support staff), employment status of technical personnel (temporary, permanent)
	KTO IP expenditures	Expenditures for registration and maintenance of patents • by licensee • by source
ES (SICTI)	KTO staff	No definition provided.
	KTO IP expenditures	No definition provided.
FR (SATT)	KTO matura-tion/ transfer expenditures	All expenses/charges corresponding to invoiced charges in the accounting sense related to maturation/transfer activities; Of which IP expenses/charges: invoiced IP expenses/charges
	KTO staff	Total workforce (permanent and fixed-term, in FTE): all persons employed by the SATT, including those on secondment, delegation, or detachment. Include the President in this count. Maturation/transfer workforce (in FTE): all persons whose activities are dedicated to maturation, including pre-maturation, but excluding those dedicated to the incubation of innovative companies. This includes personnel responsible for drafting and

		negotiating license agreements. Include persons directly or indirectly paid by the SATT (e.g., recruitment carried out by an institution with SATT funding). Service workforce (in FTE): all persons providing services as defined in the 2010 SATT call for projects (see reminders on the first page of this document). Support functions workforce (in FTE): all persons whose activities cannot be attributed to maturation, service, or incubation of innovative companies. Incubation workforce (in FTE): all persons dedicated to supporting the incubation of innovative companies and raising awareness of entrepreneurship among staff and students.
	KTO Service expenditures	Service expenses/charges: all expenses/charges related to service activities as defined in the paragraph above. In the case of IP management on behalf of institutions, protection expenses/charges are to be included here.
	KTO incubation expenditures	All expenses/charges (direct and indirect) related to incubation activities
IE	KTO age	Year of foundation of the TTO (TTO: the team responsible for managing KT services, including intellectual property management, licensing, partnering with industry and the creation of new companies)
IT (PROs)	KTO form	Does your university/institution have a KTO (or, more generally, a unit/office dealing with technology transfer/research results exploitation)? Does the KTO also have decentralised offices in departments/centres?
	KTO age	If yes, in what year was it established?
	KTO budget	KTO annual budget includes: (i) the university's funding (staff costs + KTO budget, including operating expenses, such as telephone, stationery, publications, rent, travel); (ii) self-financing from research projects and activities on behalf of third parties (income from contracts for research and consultancy financed by third parties and technical services relating to the reference year); (iii) self-financing from patents/know-how (income from licensing activities, patent transfers, shareholdings in spin-off companies).
	KTO staff	Please indicate the number of FTE (Full-Time Equivalent) staff members employed by the KTO (including collaborators) and, if available, divide them into structured and non-structured staff: 2.16 Please indicate the type of contract for non-permanent FTE employees on the KTO staff (the total must be equal to the number indicated in the third row of the table above):
	KTO services	Please indicate the breakdown of the time (FTE) spent by staff at the KTO (both permanent and temporary) between the following functions (the total must be 100%): • intellectual property protection • research and consulting contracts • licensing • spin-offs and start-ups • other tasks (e.g. management, finance, training etc.) • Public Engagement

		• youth entrepreneurship training programmes • drafting and managing innovation/TT projects • organising promotion events • spin-off/start-up incubation • scouting results from research • business relations • training activities • other
	KTO IP expenditures	Amount spent on IP protection (external legal fees, patenting costs and consultancy) incurred by the KTO (in Euro) Percentage of expenditure on IP protection covered by (total must equal 100%): Licensees, University subsidies or own funds, Total
PL	KTO age	Na
	KTO staff	Na
	KTO services	Na
	KTO IP expenditure	Expenditure of university/PRO on patent management (personal costs, external costs, patent fees, etc.)
SE	KTO form	Does the institution have a dedicated innovation office and responsible person for innovation activities? [yes/no]
	KTO age	If "Yes", In which year did the program start?
	KTO staff	Full time equivalents FTE employed in your innovation office and holding company on Dec. 31st of last year
	KTO services	What are the activities of your innovation services? [yes/no] • Research contracts (drafting, negotiating, controlling) • Evaluation, protection and management of IP • Commercialisation of IP (licensing, marketing) • Support and/or Coaching of start-up projects • Financial administration of research projects
UK	Total IP costs	Total costs includes the cost of IP expenditure, such as salary and related costs of specialist IP staff, patent and other protection fees and legal expenses. IP expenditure should be reported here. It should include salary and related costs of specialist IP staff, patent and other protection fees and legal expenses.
AU/NZ	KTO staff	KTO Staff (commercialisation) FTE
US	KTO age	2.1 What was the first year that your institution dedicated at least 0.5 of a staff person to technology transfer activities? This year will be used as the start of technology transfer activity at your institution. The individual assigned to technology transfer activities may or may not have had a formal tech transfer job title and may or may not have been in an organisational unit with “technology transfer” in its title, i.e., technology transfer/licensing office. Technology Transfer Office: The office(s) that manages and performs the technology transfer activities. Also referred to as a technology licensing office. Technology transfer activities include those associated with the identification, documentation, evaluation, protection, marketing, and licensing of technology (including trademarks but not a university's insignia) and intellectual property management, in

		general. It encompasses all other activities also associated with the day-to-day operations of a technology transfer office, including assisting with the negotiation of research agreements, material transfer agreements, reporting of inventions to sponsors, and all other duties performed by the office. Program Start Date refers to the year in which 0.5 PROFESSIONAL FTE was devoted toward technology transfer activities. 0.5 Professional FTE: A professional position whose duties included support of TECHNOLOGY TRANSFER ACTIVITIES at least 50% of the time. This person may or may not have been located in a formally established TECHNOLOGY TRANSFER OFFICE at that time.
	KTO staff	2.2 How many LICENSING FTEs were employed in your technology transfer office in 2024? Licensing FTE: Person(s) employed in the technology transfer office whose duties are specifically involved with the licensing and patenting processes as either full or fractional FTE allocations. Licensing examples include licensee solicitation, technology valuation, marketing of technology, license agreement drafting and negotiation, and start-up activity efforts. 2.3 How many OTHER FTEs were employed in your technology transfer office in 2024? Other FTE: Person(s) employed in the technology transfer office as either full or fractional FTE allocations whose duties and responsibilities are to provide professional, administrative, or staff support of technology transfer activities and who are not otherwise included in LICENSING FTE (Q2.2). Such duties might include management, compliance reporting, license maintenance, negotiation of research agreements, contract management, accounting, material transfer agreement activity, and general office activity. General secretarial/administrative assistance to the technology transfer office may also be included in this category. These questions pertain to those individuals your office directly supports/funds. Support provided by the Office of General Counsel that is not directly paid by your office is an example of an FTE that should not be included. Please report the Full-Time Equivalents (FTEs) in your Technology Transfer Office by full or fractional FTEs for licensing (as defined in LICENSING FTE) and other (as defined in OTHER FTE).
	Legal fees	Q7.1 What was spent on external LEGAL FEES for patents and/or copyrights in 2024? Legal Fees: For question (Q7), provide the costs/reimbursements for external legal fees and reimbursements (see definitions below for LEGAL FEES EXPENDITURES and LEGAL FEES REIMBURSEMENTS). To answer this question, you should consider and omit your significant litigation expenses. Legal fees are defined to include patent and copyright prosecution, maintenance, and interference costs, as well as minor litigation expenses that are included in everyday office expenditures (an example of a minor litigation expense might be the cost of an

		initial letter to a potential infringer written by counsel), and to exclude significant litigation expense, e.g., any individual litigation expense that exceeds 5% of total LEGAL FEES EXPENDITURES. (Note: In earlier Surveys, legal fees were defined to include all components — prosecution, maintenance, interference, and litigation costs — with no threshold for reporting of litigation expense. The refinement to litigation expense occurred in 1999 and is intended to eliminate skews in the data as a result of significant litigation. It is also expected to yield more meaningful results in copyright and patent maintenance and prosecution costs as well as more useful comparisons of these data across institutions.) LEGAL FEES EXPENDITURES include the amount spent by an institution in external legal fees for patents and/or copyrights. These costs include patent and copyright prosecution, maintenance, and interference costs, as well as minor litigation expenses that are included in everyday office expenditures (an example of a minor litigation expense might be the cost of an initial letter to a potential infringer written by counsel). Excluded from these fees is significant litigation expense, e.g., any individual litigation expense that exceeds 5% of total. Q7.2 What was received in LEGAL FEES REIMBURSEMENTS from licensees in 2024? LEGAL FEES REIMBURSEMENTS include the amount reimbursed by licensees to the institution for LEGAL FEES EXPENDITURES (see definition for LEGAL FEES EXPENDITURES). Include in this category both LEGAL FEES REIMBURSEMENTS paid via lump sum payments of costs incurred in prior years when a new license is signed AND regular reimbursements of new costs incurred after the license is signed. Do not include amounts deducted from LICENSE INCOME prior to internal distribution because LEGAL FEES EXPENDITURES have not been previously reimbursed (e.g., technologies licensed non-exclusively).
ZA	KTO age	2.1.1 In what year (if any) did your institution first dedicate at least 0.5 FTE professional persons to the technology transfer function? [year]
	KTO form	2.1.2. Do you have a standalone unit / directorate that deals with TT activities? [Yes/No}. If Yes - Is this a separate legal entity from the institution? [Yes/No]. If Yes - in what year was the legal entity established [year]
	KTO IP expenditures	An amount spent by an institution in external legal fees for filing, prosecuting, obtaining, maintaining, renewing and commercialising its own IP, but excluding litigation expenditure.
	KTO litigation expenditures	All litigation expenses associated with the enforcement or defence of an institution's rights in a disclosure.
	KTO expenditures for TTO operations	The expenses associated with the operation of the TTF, such as human resource costs, office infrastructure, internal consultants, marketing and operational activities and commercialisation activities, but excluding IP expenditure, litigation expenditure, TIA seed funding and non-TIA seed funding.

		Operational activities include hosting IP awareness workshops / seminars, IP and TT related events, access to IP analysis or showcasing platforms, access to TT administration tools (databases, search tools IP databases), marketing/promotional materials to promote the TTF including design and printing cost. Commercialisation Activities include IP Audits, access to IP showcasing platforms, contract drafting, techno-economic feasibility analysis, market assessment, business plan development, technology marketing, short-term appointment of expert to assist with commercialisation, start-up or incubation-related activities
	Reimbursement of IP expenses (from licensing)	An amount recouped by or paid to an institution, from another party to an IP TRANSACTION, which amount is used or earmarked for use as IP EXPENDITURE.
	KTO services	Indicate whether the following key activities have been undertaken by your institution for the most recent year surveyed (2018): • receiving disclosures • novelty searches • managing process of IP registration, prosecution & maintenance • market research or analysis (incl. IP landscaping) • negotiating licence deals • spinning out companies (registration, negotiation of IP transactions) • Mentoring & other support of spin-offs / • Fund raising • Statutory compliance (IPR Act disclosures, referrals, etc.) • Administering or managing funding • conducting training and awareness workshops, etc. • infringement monitoring • infringement litigation

Appendix table 25: Research-related metrics

Source	Indicator	Questions (or descriptions) and definitions
ASTP	Research expenditures	Please give the aggregate Research Expenditures in FY2021 for all PRO(s) for which your KTO is reporting data under this survey (€). Include share of academic costs dedicated to research (e.g. salary costs of permanent academic staff, costs of administrative support, capital expenditures on new equipment). Exclude cost of new buildings or land.
	Research effort	What was the (combined) research effort of your PRO(s) in FY2021, expressed in FTEs? Include time spent by academic staff on research (also include FTEs for post-docs, PhD students, research fellows, technicians and the like). Exclude time spent by staff on teaching. If an estimate number, please specify in the comment box below.
CZ	Research personnel (FTE)	Persons working in research and development (hereinafter referred to as R&D personnel) are not only researchers who carry out R&D directly, but also auxiliary, technical, professional, administrative and other personnel working in R&D departments in the reporting units who provide direct services to these departments. For more details, see the Frascati Manual and its Chapter 5. R&D personnel do not include individuals performing indirect services for the R&D unit concerned, such as running the factory canteen, security, cleaning or security.
DE	Academic staff	Total number of academic staff (in FTE) at the research institution at the end of the 2021 financial year (for the purpose of standardisation)
ES (RedOTRI)	R&D expenditures	Total expenditure on R&D (in euros). • R&D expenditure financed by public funding programmes (in euros) • R&D expenditure financed by contracted research, collaborative research, consultancy and technical services (in euros) • R&D expenditure financed by private donations and grants (in euros) • R&D expenditure financed by general university/public research organisation funds (in euros)
	Faculty	Faculty by field, gender, active in research, active in transfer, with PhD, potential and total six-year terms
	Research personnel (FTE)	Total research staff for the year (in FTE) • Researchers • Technicians and similar staff • Other support staff
ES (SICTI)	R&D expenditures	Na
	Faculty	Total and faculty in transfers
	Researchers	Na
IE	Research expenditures	Expenditure excluding block grants and capital expenditure, total, from industry and from non-commercial entities. No further definition provided.
IT (Netval)	University budget	This refers to the total funding (not only for research) from the Ministero dell'Università e della Ricerca (MUR), plus any other

		funding, including that received for activities on behalf of third parties.
	Researchers	Number of contract workers, research fellows and other professionals engaged in research activities (FTE – Full-Time Equivalent)
	Research expenditures	Please indicate the total amount of research funding (including both public and private funding, in Euro) and, if available, break down the amount between the different sources of funding listed below: Funds from the central government (MUR, etc.), region, European Union, contracts for research and consultancy financed by third parties and technical services, University/ institution's own funds, Donations, Other, Total
LU	Research expenditures	National competitive funding: opportunities from FNR with the exception of those scheme considered collaborative. Consideration will be given to revenues booked for the year in question in relation to eligible expenditure (and not the number of contracts signed). International competitive funding: International research programs include those with an ex ante scientific evaluation following a call for projects. Programs with an ex ante scientific evaluation following a call for projects, such as FP7, LIFE, EIT, as well as the European Green Deal and the Digital Europe Programme. Revenues booked for the year in question will be taken into account with regard to eligible expenditure (and not the amounts of signed contracts). Collaborative funding: All co-financing of collaborative projects within the meaning of the Community guidelines on state aid with a private or public entity, missions commissioned and financed by Luxembourg ministries or their administrations, other than the ministry responsible for higher education, royalties or other income from property rights, ESA funding, EDA funding, funding received from foundations or in the context of fundraising, and NCER and INITIATE funding.
	Scientific publications	Publication intensity defined as average annual number of refereed journal publications per FTE research personnel Top 10 % publications: minimum number of scientific articles published in top 10% journals based on the "Normalised Journal Impact Factor" Joint publications: Minimum number of publications in peer-reviewed scientific journals between at least one author and at least one author from another Luxembourg research institution.
PL	Research expenditures	Research expenditures of university/PRO (excluding land and buildings)
TR	Scientific publications	Number of Publications (Articles and Reviews) in Journals Indexed in the ISI Citation Index (SCI, SCI-E, SSCI, and A&HCI)
	Projects Funded by R&D and Innovation Support Programs & Amounts of Fund	Projects supported under R&D and Innovation Programs by public institutions are taken into consideration. All public institution projects are evaluated with equal weight. The funds obtained from projects supported under R&D and Innovation Programs by public institutions are taken into consideration. All public institution projects are evaluated with equal weight

	Number of R&D and Innovation Projects Conducted through University-Industry Collaboration under Public Funds & Amount of the fund	Number of University-Industry Collaborative Projects Supported by National R&D and Innovation Support Programs That Started, Continued, or Were Completed in the Requested Year and the Amount of Funds Received from These Projects (Includes projects supported by public institutions providing funding in the field of R&D and innovation, as well as consultancy services provided for publicly funded industry projects.)
	R&D and Innovation Projects Conducted through University-Industry Collaboration & Amounts of Fund	Projects supported under R&D and Innovation Programs by public institutions that involve industry collaboration (e.g., partnerships, service procurement, etc.) are considered. All public institution projects are evaluated with equal weight. Industry-contracted projects are excluded. The amount of funds obtained from projects supported under R&D and Innovation Programs by public institutions that involve industry collaboration (e.g., partnerships, service procurement, etc.) is taken into consideration. All public institution projects are evaluated with equal weight. Industry-contracted projects are excluded.
	Scientific awards	Number of Awards Received by Academic Members or Students Continuing Their Education at the Institution Under YÖK Outstanding Achievement Awards (Institutional, Individual, and Special Fields)*, TÜBİTAK Awards (Science, Special, Service, and Incentive Awards), and TÜBA GEBİP Awards
	PhD graduates and students	Number of PhD Graduates in the Requested Academic Year (Including TUS, DUS, EUS, and Proficiency in Art) and Number of PhD Students in the Requested Academic Year
AU/NZ	Research expenditures	The total spent on research, whether funded through public or private grants or research contracts or from general organisational funds.
US	Research expenditures	3.1 What were your TOTAL RESEARCH EXPENDITURES in 2024? NOTE: TOTAL RESEARCH EXPENDITURES should be greater than or equal to the sum of your funding from GOVERNMENT SOURCES and INDUSTRY SOURCES. 3.2 What were your research expenditures from FEDERAL GOVERNMENT SOURCES in 2024? Research Expenditures: Federal Government Sources: Research expenditures from FEDERAL GOVERNMENT SOURCES include expenditures made by the institution in support of its research activities that are funded by the federal government. Expenditures by state, local or provincial governments should be excluded. Do not include funding received as part of a federal fellowship grant. 3.3 What were your research expenditures from INDUSTRY SOURCES in 2024? Research Expenditures: Industrial Sources: Research expenditures from INDUSTRIAL SOURCES include expenditures made by the institution in support of its research activities that are funded by

		for-profit *corporations*, but not expenditures supported by other sources such as foundations and other nonprofit organisations. Also note that we do not request state/provincial government and foundation funding, so Question (Q3.1) should be equal to or larger than the sum of Questions (Q3.2) and (Q3.3).
	Research expenditures for clinical trials	How much of the research expenditures from INDUSTRY SOURCES was funding for CLINICAL TRIALS in 2024? NOTE: Funding for CLINICAL TRIALS must be less than or equal to your funding from INDUSTRY SOURCES.
ZA	R&D expenditures	The expenditure incurred in performing research and development (R&D) activities, whether funded by the institution that conducts the R&D, external funders, customers, public funding agencies or any other source.
	Clinical Trial	A systematic test conducted on human volunteers before a new drug, vaccine, device or treatment can be introduced into the market to ensure that it is both safe and effective and which test is approved by the South African Health Products Regulatory Authority (SAHPRA), including four standard phases, three of which take place before permission to manufacture is granted.

Appendix table 26: Research agreements with non-academic partners (collaborative R&D, contracted R&D etc.)

Source	Indicator	Questions (or descriptions) and definitions
ASTP	Research agreements	Please provide the number of new agreements with non-academic parties that were signed in FY2021: Note that we are collecting data at an institutional level and not only at KTO level, so please contact other relevant departments, if needed.
	Contract research	Contract Research means research performed by a PRO at the request of and paid for by a non-academic organisation, using existing knowledge, know-how, materials, equipment and other resources available at the PRO. Under a Contract Research Agreement, the project is typically designed by the non-academic party and all results and IP are typically owned by the non-academic organisations and PROs may not be allowed to publish the results of the research. The incentive for the PRO to engage in such research is not academic output. For the purposes of this survey, technical services provided to non-academic parties (e.g. scientific measurements, testing, analysis) will qualify as contract research.
	Collaborative research	Collaborative Research means research performed by at least one PRO and at least one non-academic party, where all parties contribute to the design of the research project, its implementation and share the project outputs. Include all collaboration agreements involving non-academic organisation, including those under which the non-academic party does not make any cash payment to the PRO directly (e.g. in case the project is fully subsidised). Under a Collaborative Research Agreement, the results and IP are typically owned by the party or parties that generated them (or are jointly owned). All parties share the data/results and academic parties have the right to publish the results of the research. The incentive for the PRO to engage in such research is primarily academically-driven (generation of new scientific knowledge).
EC[a]	Contract research	Research on behalf of undertakings (contract research or research services) 26. Where a research organisation or research infrastructure is used to perform contract research or provide a research service to an undertaking, which typically specifies the terms and conditions of the contract, owns the results of the research activities and carries the risk of failure, no State aid will usually be passed to the undertaking if the research organisation or research infrastructure receive payment of an adequate remuneration for its services, particularly where one of the following conditions is fulfilled: (a) the research organisation or research infrastructure provides its research service or contract research at market price; or (b) where there is no market price, the research organisation or research infrastructure provides its research service or contract research at a price which: • reflects the full costs of the service and generally includes a margin established by reference to those commonly applied

		by undertakings active in the sector of the service concerned, or • is the result of arm's length negotiations where the research organisation or research infrastructure, in its capacity as service provider, negotiates in order to obtain the maximum economic benefit at the moment when the contract is concluded and covers at least its marginal costs. 27. Where the ownership of, or access rights to intellectual property rights ('IPR') remain with the research organisation or research infrastructure, their market value may be deducted from the price payable for the services concerned.
	Collaborative research	Collaboration with undertakings 28. A project is considered to be carried out through effective collaboration where at least two independent parties pursue a common objective based on the division of labour and jointly define its scope, participate in its design, contribute to its implementation and share its financial, technological, scientific and other risks, as well as its results. One or several parties may bear the full costs of the project and thus relieve other parties of its financial risks. The terms and conditions of a collaboration project, in particular as regards contributions to its costs, the sharing of risks and results, the dissemination of results, access to and rules for allocation of IPR, must be concluded prior to the start of the project. Contract research and provision of research services are not considered to be forms of collaboration.
BE	Collaborative research	Collaborative Research means research performed by at least one PRO and at least one non-academic party, where all parties contribute to the design of the research project, its implementation and share the project outputs. Under a Collaborative Research Agreement, the results and IP are typically owned by the party or parties that generated them (or are jointly owned). All parties share the data/results and academic parties have the right to publish the results of the research. The incentive for the PRO to engage in such research is primarily academically-driven (generation of new scientific knowledge).
	Contract research	Contract Research means research performed by a PRO at the request of and fully paid for by a non-academic organisation, using knowledge, know-how, materials, equipment and other resources available at the PRO. Under a Contract Research Agreement, the project is typically designed by the non-academic party and all results and IP are typically owned by the non-academic organisations and PROs may be allowed to publish the results of the research.
BG	Contract research	Contract Research is research or service handled by TTO and performed by a PRO at the request of and fully paid by a non-academic organisation, using knowledge, IP, know-how, materials, research infrastructure and other resources available at and owned the PRO. Under a Contract Research Agreement, the project is typically designed by the non-academic party and ownership all results and IP are subject of this contract.
	Collaborative research	Collaborative Research is research performed by at least one PRO and at least one non-academic party handled by TTO, where all

		parties contribute to the implementation of the research project, and share the project outputs. Under a Collaborative Research Agreement, the ownership of results and IP are subject of this agreement. All parties share the data/results and all parties have the right to publish the results of the research.
CH	Research agreements	Total number of new research contracts handled by your TTO Note: The number should include collaboration agreements, service agreements, clinical trial agreements, Innosuisse complementary and EU agreements. The number should not include MTAs, NDAs, other TT contracts (see 4.3) and SNSF contracts. Of these research contracts, how many were executed with small and medium enterprises (SME), how many with large companies and how many with public partners; contracts with multiple institutions Note: Companies with 250 or less employees should be considered as SME Amount of cash payments due to your institution from research contracts that were handled by your TTO according to 4.1 [in CHF] Note: Please give the amount of cash due to your institution, without any material assets e.g. for machinery. Please consider not the total amount of research projects, e.g. if an EU project adds up to 3 Mio. EUR but your institution gets only 200'000 thereof, the latter shall be given. Please do not split the amount if the contract is covering several years but report the full amount in the year the contract is signed.
CZ	Collaborative research Contract research	Reference to the EC "Community framework for State aid for research and development and innovation" in the document "Methodology for Evaluating Research Organisations in the Universities Sector" (see definitions above).
DE	Research agreements	Please indicate the number of contracts with industry for the purpose of knowledge and technology transfer of the scientific institution whose contract term started in the 2021 financial year. Contract research agreements, R&D cooperation agreements, R&D service and consultancy agreements, contracts for the use of scientific infrastructure are included. Pure non-disclosure agreements, material transfer agreements and IP-related agreements as well as contracts for the procurement of services are not counted.
DK	Research collaboration agreements	19. Number of research collaboration agreements Research collaboration agreements refer to agreements entered into by the institution with one or more external actors on R&D collaboration or commissioned research. Grants and funding alone cannot constitute a research collaboration agreement but can be part of such an agreement. Research collaboration agreements include: • Collaboration agreements on co-financed research, including in-kind financing. • Agreements on Commercial Income-Covered Activities (commissioned research). • Clinical agreements. • Ph.D. and postdoc agreements (co-financed and industrial).

		• Material Transfer Agreements. Research collaboration agreements do not include: • Sponsorship agreements without any specific consideration. • Consultancy agreements entered into between students or employees at the institution and external parties, where the agreement is not between the institution and the company. • Agreements on the completion or extension of existing research projects. • Agreements on students' exam projects with or internships in external organisations where the university is not a party (both 2-party and 3-party agreements). • Allocation of grants and funding. 19A. Of these, research agreements entered into with private companies Research agreements refer to agreements entered into in the relevant calendar year by the institution with one or more private companies on R&D collaboration. The indicator also includes Ph.D. agreements and postdoc agreements. The collaboration can be wholly or partially financed by the participating companies, including in-kind financing. The indicator also includes company-initiated clinical research projects, even if another public research institution is inserted as the national coordinator between the company and the institution (sub-site), as the actual agreement relationship is between the institution and the company. 19B. Of these, research agreements with public authorities, etc. Research agreements refer to agreements entered into in the relevant calendar year by the institution with one or more public national or international authorities on R&D collaboration, including agreements on public service and collaboration on Ph.D. education or postdoc education. The collaboration can be wholly or partially financed by the participating institutions, including in-kind financing. For research agreements with EU funding, the Consortium Agreement between the participating parties is included, while the Grant Agreement is not included. Research agreements with public authorities do not include: • Research agreements with other public research institutions. However, several research institutions can be included in the same research collaboration agreement, as long as it also includes one or more external actors as defined in 19A or 19B. • Agreements on research funding from public research councils, funds, programs, including ERC, etc.
ES	R&D contracts	The amount subscribed (not received) and the number of R&D contracts concluded in the year (n) are recorded, classified i) according to the public or private nature of the contracting entity, ii) according to the geographical origin of the contracting entity. iii) according to the branch of knowledge of the faculty. The number and amount of technical support and service contracts is also shown with the same breakdown.
	Collaborative projects	Projects in which at least two institutions, public or private, are involved in carrying out an R&D&I project, where all parties participate in the design of the project, contribute to its implementation and share the results of the project. The definition

		includes collaborative projects financed in competitive public competition at regional, European, and national level (e.g. CDTI collaborative R&D projects, Collaborative Challenge Projects, etc.). Only those collaborative projects in which the institution participates as part of the consortium are counted. In the case of participating in a collaborative project as a subcontracted party, it will be counted as an R&D&I contract. Example: FET, ERC Synergy, Research infrastructure, Pillar II in Horizon Europe, Pillar III in Horizon Europe, Widening Participation and Strengthening the European Research Area (Teaming & twinning, ERA Chairs, COST...). Other non-Horizon Europe calls funded by EU (LIFE, INTERREG...), Colaboración Público-Privada.
	Non-collaborative research projects	Projects of a competitive nature, whether awarded in the form of a grant or a loan to the University (U). Non-collaborative projects are understood as opposed to "collaborative projects", which are those in which innovation is sought through collaboration between the university and companies or other non-academic entities. Examples of non-collaborative research projects are those of the programmes of Excelencia y Retos Investigación of the State Plan for Scientific and Technological Research (whether coordinated or not), or grants from the European Research Council, ERC - Starting Grant, ERC - Consolidator Grant, ERC - Advanced Grant, ERC - Proof of concept.
FR	Collaborative research	Collaborative research contracts are based on a scientific programme with contributions from at least two parties, and are partially or fully funded by the public authorities. (Competitive clusters, National Research Agency (ANR) project, H2020 project, etc.)
	Contract research	Bilateral research contracts only include collaborative research contracts with companies or public industrial bodies and funded by them. This implies carrying out scientific work with an uncertain scientific outcome, the roadmap for which has been more or less co-constructed between the parties. Material transfer agreements (MTA), confidentiality agreements, framework agreements, consortium agreements, licence and licence option contracts, provision of premises, etc. are excluded.
IE	Collaborative research	Number of industry wholly-funded collaborative research agreements signed during the reference year. May include more than one agreement signed with the same company. Collaborative Research: A research project/programme between an industry party and an RPO. The project/programme may be: • wholly funded by the industry party or; • part-funded by the industry party (in cash and/or in kind, including participation in the research itself) and part-funded by the State or other external sources. Collaborative research may involve two or more parties. Characteristics of collaborative research with industry: The purpose of collaborative research is the generation of new knowledge. Typically, there will be an expectation of publication although the project may be governed by aspects of confidentiality. Intellectual property may be created and how the company benefits will be determined in the collaboration

		agreement and will depend on the contribution to the project made by the company. (Excludes contract services, consultancy, innovation vouchers, academic collaborations and research grants).
	Innovation vouchers	Innovation Vouchers: Innovation Vouchers worth Euro 5,000 are available to assist a company or companies to explore a business opportunity or problem with a registered knowledge provider (i.e. higher education institutes, public research bodies).
	R&D Agreements	Research Collaboration Agreements (wholly and part-funded) plus Innovation Vouchers. Wholly or Partly Funded Research Agreements must have some monetary payment from the commercial entity i.e. cannot be 100% in-kind Complete fields for both Cash Contribution % and In-kind Contribution % - record is deemed to be incomplete if these fields are not completed Please note that the Company Contribution should be entered excluding VAT RAs with NCEs will be tracked but will not be counted towards yearly targets"
IT (PROs)	Research contracts	Contracts through which entities external to the university (e.g. companies) finance research activities at the university, becoming – in most cases, but not always – owners of any patents generated by the results obtained.
	Collaborative research contracts	Research contracts funded by industry that involve the active collaboration of the industry itself (joint ownership of IP protection rights).
PL	Contracts with non-academic entities	Types of contracts considered in the survey: MTA, NDA, RCA, contracted research, consultancy services
	MTA	Material Transfer Agreement: An agreement that sets out the details of the transfer of research material between its parties (including what is transferred, for what purpose, how it can be used).
	NDA	Non-Disclosure Agreement: A mutual obligation between the parties to a contract setting out the rules for their dissemination of confidential information.
	RCA, JRC	Research Collaboration Agreement, Joint Research Agreement: A research collaboration agreement (e.g. a consortium agreement) in which the parties agree on the details of the research collaboration, including the elements the parties bring to the joint project, the terms of the collaboration.
	Contracted research	Research conducted under an agreement with a party funding or co-funding that research, providing for an obligation to assign rights to the research results to that party or to an entity other than a party to the agreement.
TR	Collaborative research involving public funding	Projects supported and funded by government, R&D and innovation support programs that involve industry collaboration (partnership, service procurement, etc.) are considered.

	Contracted Research	Contract Research means research performed by the University or PRO at the request of and fully paid for by a non-academic organisation, using knowledge, know-how, materials, equipment and other resources available at the University or PRO. Under a Contract Research Agreement, the project is typically designed by the non-academic party
AU/NZ	Research contract	A contract to conduct research and accessing the capabilities of an organisation for commercial purposes.
UK	Collaborative research involving public funding	This includes research projects with public funding from at least one public body, and a material contribution from at least one external non-academic collaborator. The collaborative contribution may be cash or 'in kind' if this is specified in a collaborative agreement and auditable. In-kind contributions include contributions to the project from the non-academic collaborators (for example staff time, use of equipment and other resources, materials, provision of data etc.) as described in the project collaboration agreement. Collaborative research involving public funding is analysed as follows: UKRI (except Research England), Royal Society and British Academy includes all collaborative research income from research councils covered by the UK Research and Innovation, The Royal Society and The British Academy. The research councils are: • Biotechnology and Biological Sciences Research Council (BBSRC) • Natural Environment Research Council (NERC) • Engineering and Physical Sciences Research Council (EPSRC) • Economic and Social Research Council (ESRC)
	Contract research	This includes contract numbers and income identifiable by the HE provider as meeting the specific research needs of external partners, excluding any already returned in collaborative research involving public funding and excluding basic research council grants. Contract research income from charities may be included where the charity is contracting research for its own purposes. Contract research numbers and income are further analysed by: • Small and medium enterprises (SMEs) includes enterprises which employ fewer than 250 persons and which have an annual turnover not exceeding EUR 50 million, and/or an annual balance sheet total not exceeding EUR 43 million. SMEs include micro, small and medium enterprises and sole traders. • Other (non-SME) commercial businesses includes other commercial businesses which do not match the above definition of SMEs. • Non-commercial organisations includes organisations from which shareholders or trustees do not benefit financially. Contract Research (Head 2) should be used to return specific contract research. Income returned under head 2 must be identifiable as the HE provider meeting the specific research needs of external partners. Income must align with the accounting policies adopted by the provider, i.e. in a year in which the financial accounts recorded that a provider received contract

		research income, it should be returned in the corresponding HE-BCI submission. Awards and grants made for proposals from the HE provider should not be returned in Table 1. In particular, basic research council grants should not be returned as contract research. SMEs include micro, small and medium enterprises, and sole traders. See the coverage of the record for further details on definitions. Income from commercial and non-commercial organisations for contract research may include various projects relating to both STEM subjects and non-STEM subjects. Contract research income from charities can be included under head 2 where the charity is contracting research for its own purposes. Where a contract spans multiple years, it must be returned for each academic year that it is active. The income associated with the contract should only be returned for the years in which it is received.

[a] European Commission (2022). *Communication from the Commission Framework for State aid for research and development and innovation 2022/C 414/01* (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52022XC1028%2803%29).

Appendix table 27: Industrial PhD students and education offers for third parties

Source	Indicator	Questions (or descriptions) and definitions
BG	Industrial PhD theses	PhD theses initiated by industry and KTO
ES	Industrial PhD students	Na
IT (Netval)	Third-party training	Third-party training (master's degrees, executive training, etc.): Foundations, Companies, Other
	Revenues from third-party training	Na
LU	Public-private partnership positions	Number of PhD students and Post Doc researchers belonging to a project where the funding commitment of the private partner is at the least 25 %.
SE	Industrial doctoral students	Na
TR	Students enrolled in industry PhD programme	Total Number of Enrolled Students Benefiting from the TÜBİTAK 2244 Industry PhD Program. The objective of the 2244-Industry PhD Program is to train highly qualified human resources with doctoral degrees needed in the industry through university-industry collaboration, to promote the employment of doctoral researchers in the industry, and to enhance cooperation between universities/research infrastructures and the industry.
UK	Revenues from CPD courses and CE	Continuing Professional Development and Continuing Education (excluding pre-registration funded by the NHS or DfE/Teaching Regulation Agency (formerly NCTL)) HE providers offer courses to upskill and develop workforces and to enhance the employability and professional skills of individuals. This includes revenue generated by Continuing Professional Development (CPD) courses, defined as a range of short and long training programmes for learners already in work who are undertaking the course for purposes of professional development, upskilling or workforce development. CPD course revenue is further analysed by SMEs, other (non-SME) commercial businesses and non-commercial organisations. CE and CPD course revenue is additionally analysed by CE and CPD for individuals which includes revenue from individuals that approach the HEP for CE and CPD to develop or enhance specific employability or professional skills. Individuals following a course at the request of their employer, or as a sole trader, are not included in CE and CPD for individuals. However, these are included as either CPD for SMEs, CPD for other (non-SME) commercial businesses or CPD for non-commercial organisations. Total learner days of CPD/CE courses delivered includes contact time for lectures, tutorials, field study and small group study periods. Learner days are calculated using the assumption that one day is equivalent to one person receiving eight hours of teaching/training.
	Total learner days of CPD/CE courses delivered	

Appendix table 28: Invention disclosures

Source	Indicator	Questions (or descriptions) and definitions
ASTP	Invention disclosure	What is the number of invention disclosures received by your KTO in FY2021? Formal or informal descriptions of inventions or discoveries that are discussed with and/or evaluated by the KTO staff or other technology experts to assess their utility outside academia.
BE	Invention disclosure	Na
CH	Invention disclosure	Number of invention disclosures received by your TTO
CZ	Invention disclosure	The inventor who has created the invention in the course of employment shall immediately notify the employer of this fact in writing and provide him with the documents necessary for the assessment of the invention.
DE	[Invention disclosure][a]	Number of textual information received within one calendar year from the employees of the scientific institution (SI) about the essential features of the invention. An invention disclosure is mandatory according to §5 Gesetz über Arbeitnehmererfindungen ArbnErfG.
DK	Invention disclosure	0. Number of disclosures of non-patentable software from the institution's researchers during the Period The question refers to the situation where the institution's researchers have reported software that is not protectable in the form of either a patent or a utility model, according to the Researcher Patent Act § 3. Note: Software-based inventions that are protectable in the form of a patent or utility model should not be included here; they should still be noted under indicator [1] as before. 1. Total number of reported inventions from the institution's researchers during the Period The question refers to the number of written notifications the institution has received according to § 10 of the Researcher Patent Act (own and joint). Special for reporting in 2025: Please add a note on whether your institution usually includes software disclosures of non-patentable software under this indicator (which should now be noted under indicator [0]). This information is necessary to maintain the comparability of the numbers over time after the introduction of [0]. The addition of indicator [0] aims to ensure a uniform understanding and reporting of reported inventions (and reported software). 1A. How many of the reported inventions under indicator 1 are joint inventions, where the same invention is simultaneously reported to one or more other institutions covered by the Researcher Patent Act? The question refers to the situation where the same invention is

		simultaneously reported to several institutions. The response should not consider how much of a joint invention your institution owns.
ES	Invention disclosure	Na
FR (SATT)	Invention disclosure	Descriptions of inventions or discoveries that have been evaluated by the institution's staff or other technology experts; includes the invention object, anticipated applications, circumstances of the invention's creation. All invention disclosures are to be considered, whether or not they lead to a patent filing.
IE	Invention disclosure	Invention disclosure: The invention disclosure is the first actual recording of potential new intellectual property (IP). The researcher/inventor and TTO/ILO will complete an Invention Disclosure Form (IDF) which is a written, signed and dated record. For avoidance of doubt, the IP may be software. Sole invention / software disclosure: An Invention Disclosure for an invention or software created by one RPO and reported to that RPO via the TTO/ILO. Joint Invention/Software Disclosure: Simultaneous reporting of an Invention Disclosure for the same invention or software to more than one RPO that has been created jointly by more than one RPO via the TTO/ILO.
IT (PROs)	Invention disclosure	The invention disclosure is the first actual recording of potential new intellectual property (IP). The researcher/inventor will complete an Invention Disclosure Form (IDF) which is a written, signed and dated record. The IDF will be sent to the TTO for evaluation.
PL	Invention disclosure	Results of scientific research or development work and the know-how related to these results. Researchers are required to report results with market potential to TTO.
UK	Invention disclosure	Disclosure is the point at which academic staff disclose their idea through a formal process with the prospect of seeking protection.
AU/NZ	Invention disclosure	Describes an invention in detail and is used to determine its creators, novelty and potential for social impact and/or commercialisation.
US	Invention disclosure	4.1 How many DISCLOSURES were received in 2024? Disclosures: DISCLOSURES include the number of disclosures, no matter how comprehensive, that are submitted during the survey year requested and are counted as received by the institution. Material Transfer Agreements or Non-Disclosure/Confidentiality Agreements should not be considered disclosures. 4.2 How many of the DISCLOSURES referenced support from a federal grant? NOTE: The number of DISCLOSURES referencing support from FEDERAL GRANTS should be less than or equal to your TOTAL DISCLOSURES.

		4.3 How many of the DISCLOSURES included at least one woman on the disclosure form? 4.4 How many DISCLOSURES were returned to inventors?
ZA	Invention disclosure	3.1 Total number of new actionable disclosures reported to the National IP Management Office [number per year] Of the number in 3.1 how many are undisclosed information / trade secrets? [number per year] Disclosure: A written disclosure of potential IP that is reported to the TTF (Technology Transfer Function) for evaluation by the TTF and for which, if warranted IP protection will be sought. If governed by the IPR Act these are referred to as ACTIONABLE DISCLOSURES Actionable Disclosure: A disclosure of IP which is reportable to NIPMO on an IP7 Form as described by NIPMO in Practice Note 5.

a Not included in the national survey, but suggestion from a 2021 TransferAllianz whitepaper.

Appendix table 29: Patent applications and other IP applications

Source	Indicator	Questions (or descriptions) and definitions
ASTP	Priority patent application	15) Please give the total number of priority patent applications filed in FY2021. A priority patent application constitutes the first patent application for a technically unique invention. If priority patent applications relating to the same technically unique invention are submitted simultaneously in multiple patent offices, or are submitted after the first priority patent application within the priority year, only a single priority application should be counted.
BE	Patent application	Na
BG	Priority patent application	All new patent applications, including Patent Co-operation Treaty (PCT) applications are considered. If the same invention is patented in multiple jurisdictions only the application that currently has priority is considered. Continuations or divisions of existing patent applications are eligible for inclusion as new ones.
CH	Priority patent application	5.2 Number of priority applications filed by your TTO Note: Priority application being the very first application in any patent office.
CZ	Intellectual property	Na
DE	Priority patent application	Please indicate the total number of priority patent applications filed in the 2021 financial year. A priority patent application is the first patent application for a technically unique invention. If priority patent applications relating to the same technically unique invention are filed simultaneously in several patent offices or are filed after the first priority patent application within the priority year, only one priority application should be counted.
DK	Priority patent application	3. How many priority-creating patent applications has the institution filed during the Period? Only the first filing of a patent application is counted. Regardless of whether a priority-creating application is first filed – and subsequently a PCT application in the same case – the filed applications are only counted once and included in the Period in which the priority-creating application is filed. Only patent applications where the institution is listed as the applicant/co-applicant are included. Where the same invention forms the basis for several different applications, each patent application is counted separately. Patent applications filed by other institutions or companies regarding the institution's inventions are not included. This means that applications where another party is listed as the applicant are not included, regardless of whether one or more of the institution's researchers are listed as inventors on the patent application. The invention may have been reported and the right acquired in a previous period than the period in which the patent application is filed. Utility model applications are included.

ES	Priority patent application and co-ownership	Definition not provided.
FR	Patent application	Number of priority patents filed by the SATT: the priority patent was filed by the SATT during the considered period (filing date within the analysed period). This includes patents funded exclusively or partially by the SATT.
IE	Priority patent filing	Priority filing: The first filing of a patent application which will establish a priority date from which all national patents will derive. Depending on patent strategy the priority filing may be done as a provisional application or national patent application or regional or international (PCT) patent application. PCT: Patent Cooperation Treaty - the Treaty makes it possible to seek patent protection for an invention simultaneously in each of a large number of countries by filing an “international” patent application. The filing of an initial patent application by a patent agent, where the patent filing is in the name of the HEI and the priority date is date of filing of the application by the IP Office. Count will be the first priority patent application filed. (Excluded: double counting, such as a patent application for the same invention filed in more than one patent jurisdiction.)
IT (PROs)	Priority application	An Italian inventor may file the first patent application (priority application) either in Italy, at the Patent and Trademark Office, or abroad. The priority application, which if not extended abroad will lead to a patent valid only in the country where it was filed, is so defined because its filing date (priority date) may be claimed in subsequent applications filed abroad. It gives the right to the so-called Right of Priority. The Paris Convention has established that anyone who has filed a patent application for the first time in a country that is party to the Convention has one year to file corresponding applications in other countries, and the effects of such applications, as regards the disclosure and anticipation of other patents, start from the date of filing of the first application (priority). In practice, thanks to this convention, you have 12 months from the date of the first filing to file corresponding applications abroad.
LU	Priority patent application	Number of patent applications submitted to OLB (Office des Licences de Brevets or Patent Licensing Office), OEB (Office Européen des Brevets or European Patent Office EPO) or OAB (Office des Autorisations de Brevets or Patent Authorisation Office). Only the number of priority patent applications will be counted.
PL	Priority patent application	Definition not provided.
SE	Priority patent application	Na
NaTR	Patent application	National: Number of National Patent Applications Filed with the Turkish Patent and Trademark Office (TÜRKPATENT) in the Last Three Years by the University or Its Members as Inventors or Applicants

		International: Number of International Patent Applications Filed in the last three years by the University or Its Members as Inventors or Applicants
UK	Priority patent application	This should include all new patent applications, including (where relevant) Patent Co-operation Treaty (PCT) applications. Where the same invention is patented in multiple jurisdictions return only the application that currently has priority. Continuations or divisions of existing applications are not eligible for inclusion. Applications made under the PCT should only be counted once in this sub-head.
	Other academic patent application	Patent filed by an external party naming the HE provider as a co-applicant or staff as a named inventor: This number should be separate and additional to the cumulative number of patents as it reflects only those filed by an external partner. This data is being requested to provide insight where HE has contributed intellectual property that was not previously being captured in a systematic manner. Patents granted in the name of the external party where the HE provider is a majority shareholder and the IP originated from within the HE provider could be included here if the University's staff member is named on the patent.
AU/NZ	Priority patent application	Definition not provided.
US	Patent application	Q4.5 How many TOTAL US PATENT APPLICATIONS were filed in 2024? TOTAL US PATENT APPLICATIONS FILED includes any filing made in the US during the survey year, including provisional applications, provisional applications that are converted to regular applications, new filings, CIPs, continuations, divisionals, reissues, and plant patents. Applications for certificates of plant variety protection should also be included. TOTAL US PATENT APPLICATIONS FILED should also include PCT applications when the PCT application is the first non-provisional filing where the US is designated. If a US utility application is filed by entering the national phase of a PCT application in the US, that should also be included in TOTAL US PATENT APPLICATIONS FILED. However, a PCT application that does not designate the US (eg, because it follows a previous US utility application or is filed at the same time as a US utility application) would not be included. Q4.6 How many NEW PATENT APPLICATIONS were filed in 2024? New Patent Applications Filed NEW PATENT APPLICATIONS FILED are the first filing of the patentable subject matter. NEW PATENT APPLICATIONS FILED do not include continuations, divisionals, or reissues, and typically do not include CIPs. A US PROVISIONAL APPLICATION filed will be counted as new unless it is a refiling of an expiring US PROVISIONAL APPLICATION. If a US PROVISIONAL APPLICATION is converted into a US UTILITY APPLICATION, then that corresponding US UTILITY APPLICATION filed should not be counted as new.

		Q4.7 How many of the NEW PATENT APPLICATIONS filed included at least one woman on the application form? Q4.8 Of the new patent applications filed in 2024, how many were filed as US PROVISIONAL APPLICATIONS? Q4.9 Of the new patent applications filed in 2024, how many were filed as US UTILITY APPLICATIONS? Q4.10 Of the new patent applications filed in 2024, how many were filed as NON-US PATENT APPLICATIONS? NEW NON-US PATENT APPLICATIONS include any initial patent filing of an INVENTION DISCLOSURE made outside of the US, including PCT applications, utility applications filed in patent offices other than the USPTO and provisional applications filed outside of the US such as UK or New Zealand provisional applications. Q4.10 for US participants asks for NON-US PATENT APPLICATIONS FILED. You should respond only if the initial filing of a patent application is with a patent office other than the USPTO. It does NOT refer to all foreign patent applications filed by institutions. Q4.11 In 2024, how many PATENT COOPERATION TREATY (PCT) applications did your institution file? Q4.12 Of the new patent applications filed in 2024, how many were filed as PLANT PATENTS?
ZA	Patent application	3.3.1 Total number of NEW PATENT APPLICATIONS Filed

Appendix table 30: Patents and other IP granted

Source	Indicator	Questions (or descriptions) and definitions
ASTP	Patent granted	16) How many patents were first granted in FY2021? Include all patents owned by the PRO including those already out-licensed. For those located in Sweden, please include only those managed by your KTO. The first grant in any territory of a patent for a technically unique invention. Count a patent grant for the same invention in two or more countries as one technically unique patent. If a first patent grant for a technically unique invention has been counted in a previous year, no further patent grants for such invention should be reported. Please only count the first granted patent in each patent family.
	Active patent family	17) What is the total number of patent families in the patent portfolio managed by your KTO that are active at the end of FY2021? A patent family is a collection of patent applications and granted patents that claims the same priority date.
	Active patent family licensed/ optioned	18) Please give the number of active patent families in the patent portfolio provided under Question 17 that is licensed or optioned at the end of FY2021. Include both patent applications and granted patents for which, as of the end of the reference year, an option agreement or a license agreement is active for at least one patent family member. Note that assigned patents are not considered as part of active patent families. This number should not exceed the amount submitted under Question 17.
BE	Active patents	Na
BG	Active patents	Number of newly granted patents and active patent families excluding assigned (sold or granted) patents.
CH	Active patent cases	5.3 Overall number of active patent cases at the end of last year managed by your TTO Note: Active patents cases are pending patent applications or granted patents on an invention (patent family). Applications in various countries on one invention (claiming the same priority date) count as one patent case.
CZ	Patent	A patent is a public document issued by the PO of the Czech Republic based in the capital city of Prague or by another national or multinational patent office providing legal protection for the original results of inventive activity or research and development. It may not be manufactured offered or marketed without the consent of the patent owner. The term of validity of a patent may last up to 20 years from the filing of the application, provided that maintenance fees are paid. It is valid in the territory for which it was issued by the Office.
DK	Patent granted	4. How many patents have been issued to the institution during the Period? Only the first issuance of a given patent application and derivative patents are counted – regardless of whether the same application is subsequently issued in several countries. Patents issued in the Period that were previously issued in another country are therefore not included. Patents issued in the Period but relinquished in the same Period are included. Utility models are included.

ES	Patent granted	Number of patents granted during the year by patent office: • Spanish Patent and Trademark Office (OEPM) • European Patent Office (EPO) • United States Patent and Trademark Office (USPTO)
	Active patent families	Number of patent families in force and % that are licensed
FR	IP assets managed	Number of priority patents under management: Management of the priority patent is carried out by the SATT. The SATT may or may not provide funding. The title may have been filed by a shareholder institution or by a third party. Priority patents managed by the SATT through its service activities are to be included in this indicator. Number of priority patents for which the SATT ensures all or part of the valorisation: all or part of the valorisation (detection, protection/maturation, commercialisation) of the priority patent is entrusted to the SATT by exclusive or non-exclusive mandate. This indicator includes priority patents that are jointly valorised with a research organisation, another institution, or a third party.
IE	Patent granted	The grant of a patent in any territory. Count will include all the grants obtained, even if they are related to the same invention e.g. granted patent in a territory, continue in part granted patents, granted divisionals etc.
IT (PROs)	Active patent families	Number of active patent families in the portfolio as at 31 December of each year (total number of active securities, less disposal, assignment and sale). Patent family means all applications or patents granted that refer to a single parent application of which priority is claimed.
PL	Patent	A patent is the right to the exclusive use of an invention for a specified period of time, in a commercial (industrial, commercial) manner, within the territory of a given country or countries, granted by a competent state, regional or international body.
TR	Patent granted	National: Number of Patents Granted by the National Office in the Last Three Years for Inventions Owned or Applied for by the University or Its Members International: Number of Patents Granted by the International Offices in the Last Three Years for Inventions Owned or Applied for by the University or Its Members
	Utility model and design certificate	Number of Utility Models and Designs Granted by the National Office in the Last Three Years for Inventions Owned or Applied for by the Institution or Its Members
UK	Patent granted	This should include individual patents and any individual national patents.
	Active and live patent	This should include the number of individual active and live patents. Active patents are those currently registered under licence to an external party. Live patents are those registered but yet to be licensed.
AU/NZ	Active patent family	Na
US	Patents issued	Q4.13 How many US PATENTS ISSUED in 2024?
ZA	Patent granted	3.3.2 Total number of patents granted
	Patent family portfolio	Total number of PATENT FAMILY(IES) in the portfolio with at least one jurisdiction granted [number per survey year]

Appendix table 31: IP agreements (licenses, options, assignments)

Source	Indicator	Questions (or descriptions) and definitions
ASTP	New LOA agreements	19) What is the total number of LOAs (licenses, options and assignments) signed in FY2021: Please provide us with the number by type below, if available. 20) What is the number of LOAs signed in FY2021 by type: Total below should equal the total number submitted above. If you cannot categorise any of your LOAs into the following categories, please add them to 'Others'. Licenses for the commercial use of research materials Assignments Total Patent Licenses Software Licenses Options Others
BE	New LOA agreements	Na
BG	IP agreement	Agreements for licencing, granting, or selling of IP generated by the PRO and handled by KTO.
CH	New LOA agreements	7.1 Number of license / option / sale agreements of protected or unprotected IP your TTO did execute Note: Please count only the agreements for different technologies, i.e. 30 licenses for the same software library count as one agreement. If a license agreement is combined with a research agreement (e.g. advanced sale of the results of a research project), this contract shall count only as research contract and should not be included in this question unless the invention/software that is licensed/sold exists already at the execution date of the research contracts (background IP)." 7.1 Of these license / option / sale agreements, how many were licensed to SME, 7.1 how many to large companies … 7.1 or public institutions? [No. of LOA to public institutions] 7.1 [No. of LOA to multiple partners]
	New LOA agreements with equity	7.2 Number of license / option / sale agreements including equity? Note: Equity shall mean the ownership of interest in a company such as shares, options, warrants, etc. in consideration for granting a license or sale of IP.
	Active LOA agreements	7.3 Overall number of license/option/sale agreements active as of December 31 last year Comment 7.1 - 7.3 (e.g. large variations to previous years, special situation, i.e. with free software licenses, openBSD, etc)"
	Active LOA agreements with revenues	8.1 Total number of license / option / sale agreements yielding revenues 8.2 Total number of license / option / sale agreements yielding running royalties

		Note: Running royalties are based on product sales and are only due after the launch of a product in the market."
CZ	New LOA agreements	"Licence" refers to a licence for a result of R&D&I in the broadest sense of the word (licences for patents, utility models, industrial designs; copyright licences for software and other works, and any other licences).
DE	New LOA agreements	4) How many new contracts for the utilisation of IP were concluded in the 2021 financial year? Number of contracts: All licence, option and transfer agreements for all forms of intellectual property (copyright, know-how, patents, trademarks, etc.) with which isolated rights of use to R&D results of the scientific institution are granted to third parties (i.e. not as part of collaborations, for example) or an option to do so is granted are to be counted. All identical licences with a value of less than € 500 are counted as one licence. Exploitation agreements for joint inventions are not counted.
DK	New LOA agreements	7. Total number of license agreements. License agreements refer to agreements on the transfer of the right to use (but not ownership) intellectual property rights. License agreements with spinouts are also included, regardless of whether the establishment of such companies is also counted under indicator 13. The definition includes supplementary agreements concerning a new invention included in an existing license agreement. License agreements do not include: • Agreements on the sale of patent rights. • Agreements on research collaboration or commissioned research, where the institution grants an external party an option to later enter into a license agreement. • Agreements where the institution places inventions in commission with an external intermediary for commercialisation. • The institution's agreements with its own employees regarding their access to issue sublicenses to third parties. • Agreements on the transfer of rights to the relevant inventor in exchange for remuneration to the institution according to § 12, subsection 2 of the Researcher Patent Act. • Agreements with the institution's § 4 company, according to indicator 8. 7A. Patent rights, etc. How many new license agreements have been concluded based on inventions owned by the institution according to the Researcher Patent Act, whether these are patent-protected, utility model-protected, or licensed as know-how? Several license agreements can be concluded with different licensees based on the same invention. The total number of concluded license agreements is indicated, regardless of whether several agreements may concern the same invention.

		7B. Software rights How many unique new license agreements have been concluded based on source code owned by the institution according to the Copyright Act? Only individually concluded license agreements with a value of at least DKK 5,000 are included. [...] 9. Total number of sales agreements Sales agreements refer to concluded sales agreements where ownership of intellectual property rights is transferred for payment. Sales agreements with spinouts are also included, regardless of whether the establishment of such companies is also counted under indicator 13. The definition includes supplementary agreements concerning a new invention included in an existing sales agreement. Sales agreements do not include: • License agreements. • Agreements on research collaboration or commissioned research, where the institution grants an external party an option to later enter into a purchase agreement. • Agreements where the institution places inventions in commission with an external intermediary for commercialisation. • Transfer of rights to the relevant inventor in exchange for remuneration to the institution according to § 12, subsection 2 of the Researcher Patent Act. • Agreements with the institution's § 4 company, according to indicator 10. 9A. Patent rights, etc. How many new sales agreements have been concluded based on inventions owned by the institution according to the Researcher Patent Act, whether these are patent-protected, utility model-protected, or sold as know-how? 9B. Software rights How many unique new sales agreements have been concluded based on source code owned by the institution according to the Copyright Act? Only individually concluded sales agreements with a value of at least DKK 5,000 are included. [...] 11. Number of option agreements Option agreements refer to a provisional license or sales agreement where the institution enters into an agreement with a potential licensee or buyer to evaluate a reported invention or source code within a specified period and negotiate the terms of a license or sales agreement with the institution. Option agreements do not include: • Ordinary research agreements where a collaboration partner or client is given an option on the rights to future inventions that may arise from the collaboration (agreements under § 9 of the Researcher Patent Act). • Agreements with the institution's § 4 company, according to indicator 12.

ES	New intellectual/ industrial property agreements	Licences, licence options, assignment of rights, Material transfer agreements • by type of agreement (licences, options, assignments, MTAs) • by underlying property right (patents, software, databases, know-how, chemical, biological, plant varieties and microorganism materials) • exclusive • by licensee (own spin-offs, European SMEs, large European companies, non-European companies, public or other entities)
	Intellectual/industrial property agreements yielding revenues	Intellectual/Industrial Property Agreements (contracted in any year) that have generated income in the year.
FR	New license agreements and assignments	*License agreements* include the signatures, during the year, of contracts granting a third party the right to exploit all or part of intellectual property assets. In the case of a negotiation resulting in the signing of contracts for multiple IP assets, count only one license contract. In the case of multiple license contracts to a single and same third-party operator, count only one license contract. Financial returns can take various forms: cash, milestones, royalties, upfronts, etc. Excluded from this indicator are license options and exploitation agreements included in research collaboration contracts. *Assignments* include the signatures during the period of any asset transfer contracts of IP to a third party (transfer contract) and know-how communication contracts.
IE	New LOA agreements	LOA, Licence, Option or Assignment: A contract under which IP results are transferred, or agreed to be transferred, from one party to the other for the purpose of commercialisation. Licence: Contract transferring intellectual property rights for the purpose of commercialisation in accordance with contractual terms and conditions. Option: A contract under which a potential licensee is granted a period of exclusivity during which it can decide whether it may wish to take a licence to the intellectual property and negotiate the terms of a licence agreement. The option period may include evaluation of the IP by the potential licensee (including assessing the technology). This may be called an Option & Evaluation agreement. Assignment: Contract transferring ownership of right in IP to a third party. An agreement between an HEI and one or more commercial undertakings whereby IP rights are transferred to that undertaking for the purpose of commercialisation. LOA must be for tangible IP i.e. already created. Include LOAs for all types of IPR - patents/patent applications, trademarks, service marks, registered designs, utility models, design rights, breeders' rights,

		copyright (including the copyright in software in any code), and prototypes. Please note: • Options/Evaluations and Licences may be treated as separate agreements and each submitted as an output metric. Behaviours will be monitored against existing baseline to ensure that there isn't an upsurge in metric-driven options. • Where an Option/Evaluation agreement has led directly to an Assignment, these may be treated as separate agreements and each submitted as an output metric. • Where a Licence has been converted to an Assignment, these may not be treated as two separate agreements. • Option agreements with more than one company for the same opportunity may each be treated as a separate output metric. • In the case of licensing to intermediaries such as suppliers of reagents, where a number of items are licensed to a single company, these should be licensed by way of a schedule and will not be treated as separate agreements. This is to avoid the ludicrous situation where a company is required to execute several licenses when the industry norm would be to execute just one with the items listed in an attached Schedule. • Rationale: Options and Evaluations are not guaranteed to turn into licences. The opportunity has usually matured to an extent that the option holder is in a position to make a value decision as to whether to take a licence. Assignment of IP may be considered a licence that grants ownership instead of exclusivity. The agreement is for the same broad purpose to give the licensee or assignee commercialisation rights. • Total number in year: No. of Options/Evaluations, No. of Licences OR Assignments (avoid double counting), No. of Option/Evaluations converted to a licence in year. • LOAs with NCEs will be tracked but will not be counted towards yearly targets
IT (PROs	LOA	License: An agreement under which a licensor (e.g. PRO) grants a third party (called a licensee) the right to use a licensed technology in a specific field and territory. Option: An agreement under which a licensor grants a prospective licensee a period of time during which the potential licensee can evaluate the technology and negotiate the terms of the license agreement.
PL	Direct commercialisation agreement	Contracts for the sale of research results or know-how related to these results or for making these results or know-how available for use, in particular on the basis of a licence, lease or tenancy agreement.

TR	Number of Licensed Patent / Utility Model / Industrial Designs	This metric should include Licence agreements (non-exclusive and exclusive) signed in the requested year. License: An agreement under which a licensor grants a third party (called a licensee) the right to use a licensed technology in a specific field and territory.
UK	Licence numbers	This includes the number of all active licences granted from licence agreements, assignments, exercised option agreements, licences to spin-outs and income-generating Material Transfer Agreements (MTAs). Licences granted are further analysed by non-software licences granted and software licences granted. Total licence numbers are sub-totalled in subtotal overseas to allow the calculation of UK and total international numbers. Including licencing of patents, copyright, design registration and trademarks This head should include: a. Licence agreements (non-exclusive and exclusive) b. Assignments (out) c. Exercised option agreements (on IP already generated - excluding options embedded in research agreements where IP is still to be created) d. Licences to spin-outs (either royalty or equity bearing) e. Income-generating Material Transfer Agreements (MTAs) f. All income-generating licences should be returned, regardless of when they were agreed. This head can include either the total number of licence numbers or the total number of licensees. Income should be provided by partner type (SME, non-SME commercial and non-commercial) for non-software and software only licences. For purposes of return to HE-BCI, a licence must be a legally binding agreement between two or more parties, and not include open licences. This is to reduce burden and to exclude licences where there is no significant interaction resulting in knowledge exchange. The sale of books (including eBooks and audio books) should not be returned as there is no significant interaction where knowledge exchange is involved. Similarly, publishing agreements for academic articles should not be returned. 2av and 2bv Total number of licences generating income in the period The total should be less than or equal to the total number of licences.
AU/NZ	Licenses	Grant another party (licensee) the rights to make/sell/use the IP owned by the licensor.
	Options	Grant the potential licensee time to evaluate the IP and negotiate the terms of a licence or assignment agreement.
	Assignment	Convey all rights and title to, and interest in, the IP to the assignee.

US	Licenses, options	Q5.1 How many TOTAL LICENSES did your institution execute in 2024? Q5.2 How many TOTAL PATENT LICENSES did your institution execute in 2024? NOTE: Do not include COPYRIGHT LICENSES in this total. TOTAL PATENT LICENSES should equal the sum of your EXCLUSIVE PATENT LICENSES and NON-EXCLUSIVE PATENT LICENSES. Q5.3 How many TOTAL OPTIONS did your institution execute in 2024? Licenses/Options: Count the number of LICENSE or OPTION AGREEMENTS that were executed in the year indicated for all technologies. Each agreement, exclusive or non-exclusive, should be counted separately. Patent licenses and copyright licenses also should be counted separately. Material Transfer Agreements are not to be counted as Licenses/Options in this Survey. Licenses to software or biological material end-users of $1,000 or more may be counted per license, or as 1 license, or 1/each for each major software or biological material product (at manager's discretion) if the total number of end-user licenses would unreasonably skew the institution's data. Licenses for technology protected under US plant patents (US PP) or plant variety protection certificates (US PVPC) may be counted in a similar manner to software or biological material products as described above, at manager's discretion. License/Option Agreements: A LICENSE AGREEMENT formalises the transfer of technology between two parties, where the owner of the technology (licensor) permits the other party (licensee) to share the rights to use the technology. An OPTION AGREEMENT or EVALUATION LICENSE grants the potential licensee a time period during which it may evaluate the technology and negotiate the terms of a LICENSE AGREEMENT. An OPTION AGREEMENT is *not* constituted by an Option clause in a research agreement that grants rights to future inventions, until an actual invention has occurred that is subject to that Option. (eg, if an option has been granted to IP in a research agreement, the option can only be counted once the IP has been disclosed to the TTO and provided to the company per the agreement terms. This may happen during or after the research contract has ended). Question (Q5) asks for total numbers of patent licenses, copyright licenses, open source licenses and options, separated. If an option is executed and converted to a license within the reporting period, it should be counted as both an option and a license. If a license includes both a patent and a copyright, you may count it once for (Q5.2) or once for (Q5.4). Do not count it twice. For clarity, an Amendment to a license should not count as a new License

		agreement, even if new technology is added to an existing license. Data Access Agreements: A dataset associated with an invention disclosure, and made commercially available for a fee through an "access agreement," may be counted as a license or option. In addition, the revenue derived from that agreement may be counted as license income received. If the agreement is not associated with royalties but the dataset is available to anyone at no cost, it may be counted as an OPEN SOURCE LICENSE. Q5.4 How many of your executed patent licenses were EXCLUSIVE PATENT LICENSES in 2024? Exclusive license: The reporting of a license as exclusive or non-exclusive should follow the terms of the license agreement. If a license is designated as exclusive in the license agreement, it should be reported as an exclusive license to this Survey. Exclusive licenses include licenses that are designated as exclusive by field of use, territory, or otherwise but exclude co-exclusive licenses, which are reported as NON-EXCLUSIVE LICENSES. Non-Exclusive License: The reporting of a license as exclusive or non-exclusive should adhere to the terms of the license agreement. If a license is designated as non-exclusive or co-exclusive in the license agreement, it should be reported under non-exclusive licenses to this Survey. NOTE: Do not include OPEN SOURCE LICENSES. Q5.5 How many of your executed patent licenses were NON-EXCLUSIVE PATENT LICENSES in 2024? Q5.6 How many TOTAL COPYRIGHT LICENSES did your institution execute in 2024? COPYRIGHT LICENSES refers to licenses for copyrightable materials, data licenses and similar agreements. It does not include open source software licenses NOTE: TOTAL COPYRIGHT LICENSES should equal the sum of your EXCLUSIVE COPYRIGHT LICENSES and NON-EXCLUSIVE COPYRIGHT LICENSES. Q5.7 How many of your executed copyright licenses were EXCLUSIVE COPYRIGHT LICENSES in 2024? Q5.8 How many of your executed copyright licenses were NON-EXCLUSIVE COPYRIGHT LICENSES in 2024? Q5.9 How many TOTAL OTHER LICENSES did your institution execute in 2024? OTHER LICENSES refers to any non-open source licenses that do not fall under the patent license or copyright license categories. This includes research material licenses, biological material licenses, and seed licenses. NOTE: TOTAL OTHER LICENSES should equal the sum of your EXCLUSIVE OTHER LICENSES and NON-EXCLUSIVE OTHER LICENSES. Do not include OPEN SOURCE LICENSES, which are covered in Q5.11

		Of the TOTAL OTHER LICENSES your institution executed in 2024, how many were: Q5.9a Plant/Seed Licenses Q5.9b Research Materials or Biological Materials Q5.9c Other (please specify) Q5.10 How many of your executed other licenses were EXCLUSIVE OTHER LICENSES in 2024? NOTE: Do not include OPEN SOURCE LICENSES. Q5.11 How many of your executed other licenses were NON-EXCLUSIVE OTHER LICENSES in 2024? Q5.12 How many software titles did you make available for distribution via OPEN SOURCE LICENSES in 2024? OPEN SOURCE LICENSES should be counted when actual software is downloaded or provided via electronic means to a licensee. Open source licenses should be counted in the aggregate (eg, if 10 downloads occur for one piece of software it is counted as one license). Only count open source licenses if there are active downloads for that reporting year. NOTE: Only include OPEN SOURCE LICENSES for software that had a new version released in 2024. Q5.13 Of all the licenses your institution executed in 2024, how many included EQUITY? Licenses/Options Executed with Equity: The number of LICENSES/OPTIONS that were executed in the year surveyed that included EQUITY, where EQUITY is defined as an institution acquiring an ownership interest in a company. Q5.14 How many licenses/options were with SMALL COMPANIES in 2024? Small Companies: Companies that had 500 or fewer employees at the time the license/option was signed, but, for the purposes of this Survey, not including STARTUP COMPANIES initiated by your institution. If a technology was licensed to an existing startup company that was formed to develop a different technology, that company should be counted as a SMALL COMPANY, not a startup company. NOTE: Do not include licenses with STARTUPS in this total. Note that numbers of licenses to STARTUP COMPANIES and SMALL COMPANIES are mutually exclusive in the Survey (even though a STARTUP COMPANY will certainly have fewer than 500 employees and will therefore also be a SMALL COMPANY). Licenses to SMALL COMPANIES that are not startups should be reported in (Q5.14). Licenses to STARTUP COMPANIES should be reported separately in (Q8.1). Q5.15 How many licenses/options were with LARGE COMPANIES in 2024? Large Companies: Companies that had more than 500 employees at the time the license/option was signed. See question

		Q5.16 Of all your institution's licenses and options (cumulative through the 2024 reporting period), how many were ACTIVE on the last day of your 2024 reporting year? Q5.17 How many PATENT LICENSE AMENDMENTS did your institution execute in 2024? An AMENDMENT to a license agreement is a written modification to the original contract. It typically involves changes to terms such as duration, royalties, or the inclusion of new licensed property, without requiring a completely new agreement.
	Licenses and options yielding income	Q6.1 What was the total number of LICENSES/OPTIONS yielding LICENSE INCOME in 2024? (Q6.1) Total number of LICENSES/OPTIONS yielding LICENSE INCOME - Please include data access revenues (involving datasets licensed for a fee). Q6.2 How many licenses yielded RUNNING ROYALTIES in 2024? NOTE: The number of licenses yielding RUNNING ROYALTIES should be less than or equal to your TOTAL LICENSES/OPTIONS yielding license income. Q6.3 How many licenses/options yielded more than $1 million in LICENSE INCOME?
ZA	New LOAs	Options granted Licences executed in South Africa total, in South Africa exclusive rights, in South Africa non-exclusive rights, abroad total, abroad exclusive rights, abroad non-exclusive rights New assignments with spin-outs, with other SMEs, with large company, with a Broad Based Black Economic Empowerment compliant entity

LOA: Licenses, options and assignments

Appendix table 32: Revenues from IP agreements (licenses, options, assignments)

Source	Indicator	Questions (or descriptions) and definitions
ASTP	Commercialisation revenue	21) What are the gross revenues from commercialisation of IP earned in FY2021 (€)? Gross revenues from the commercialisation of all types of know-how and IP (e.g. patents, copyright, designs, trademarks, software, trade secrets, plant breeder rights, etc.) before distribution within the PRO or to inventors. Include license issue fees, annual fees, option fees, milestone payments, running royalties, change-of-control payments, dividends and proceeds from cashed-in equity. Exclude license income forwarded to third parties other than individual inventors. 22) Of the gross revenues reported under Question 21: The total below should not exceed the amount submitted above. If higher, please provide us with an explanation in the comment box below. What amount was generated by patent licenses (€)? What amount relates to cashed-in equity (€)? Comments:
BG	Revenue from IP agreements	Revenue generated from IP agreements in the current year.
CZ	Commercialisation revenue	Na
DE	Commercialisation revenue	5) What is the revenue from the commercialisation of intellectual property in the 2021 financial year (in €)? Revenue from the commercialisation of all types of know-how and intellectual property (e.g. patents, copyrights, designs, trademarks, software, trade secrets, etc.). Include all revenue components, i.e. in particular sales/transfer proceeds, cost reimbursements, licence fees, option fees, one-off payments, milestone payments, dividends and proceeds from (virtual) investments. Exclude revenue that is passed on to other third parties (e.g. in the case of joint inventions), unless it is an inventor's remuneration.
DK	Commercialisation revenue	15. Institution's gross income from commercialisation This includes the commercial revenues directly related to the licensing or transfer of intellectual property rights. The indicator only includes revenues invoiced during the Period. Revenues are reported before deducting inventor remuneration. Commercialisation revenues do not include: • Promises of future revenues. • Indirect revenues in the form of external research funding, including sponsorships, etc., that do not form the basis for calculating the institution's remuneration to inventors according to § 12, subsection 1 of the Researcher Patent Act. • The value of received equity that the institution has received as payment for intellectual property rights but has not yet realised through sale.

		15A. From license agreements (patent rights) 15B. From license agreements (software rights) 15C. From license agreements with § 4 company 15D. From sales agreements (patent rights) 15E. From sales agreements (software rights) 15F. From sales agreements with § 4 company 15G. From option agreements 15H. From option agreements with § 4 company 15I. From inventor remuneration according to § 12, subsection 2 of the Researcher Patent Act This refers to cases where an agreement has been made to leave commercialisation to the relevant inventor in exchange for remuneration to the institution. 15J. Realised from the sale of equity in spinouts 15K. Return from equity in spinouts (dividends from equity) 15L. Return from equity in § 4 companies after the tech-trans law (dividends from equity) 15M. Reimbursement of incurred expenses for rights protection This refers to the situation where the institution itself has incurred the expenses for rights protection but subsequently receives full or partial reimbursement of these expenses from an external party.
ES	Revenue from Intellectual/Industrial Property Agreements	Revenue generated in the year by the agreements included in the previous question, after distribution to other co-owners (in euros)
FR	Revenue from patent licenses and cashed-in equity	Invoiced products excluding VAT and accrued income [related to license agreements, license options, transfers (other than share transfers), and MTAs]/ capital gains from share transfers in start-ups/ interest related to start-up current account advances before deduction of the share of institutions.
IT (PROs)I	Licensing revenue	They include licence issue fees, payments under options, lump sum payments, annual minimums, royalties, termination payments, and income from the sale of shareholdings in companies' equity. Research funds, reimbursement of patenting costs, valuation of uncollected shareholdings, licensing of PRO trademarks are not included.
PL	Commercialisation revenue	Na
UK	IP income	This includes the IP income from upfront or milestone fees, royalties and patents cost reimbursement. IP income is further analysed by SMEs, other (non-SME) commercial businesses and non-commercial organisations, as defined under Contract research. Subtotal IP income for the current year is sub-totalled in subtotal overseas to allow the calculation of UK and total international numbers. Total IP revenues includes the gross income to the HEP, including the sale of shares in spin-offs, before disbursements to investors and other interested parties. As such this total differs from that recorded in the HESA Finance Statistics Return (FSR) Income analysed by source

		table (table 6b), sub-head 4f Income from intellectual property rights, for the same reporting period. This head should include any income from: a. Upfront/milestone fees b. Royalties c. Patent costs reimbursement received from the licence agreements in head 2. Enter a figure of zero or greater to represent the amount of income received from IP in the relevant sub-head. If the reporting provider has no potential source of income from IP in that category (rather than a source of income that has yielded zero income during the reporting year) return NULL. Intellectual property (IP) income figures should be provided by partner type (SMEs, Other (non-SME) commercial businesses, and Non-commercial organisations).
AU/NZ	Commercialisation revenue	Gross income from all LOAs and sales of products or services based on expertise or IP, plus cashed-in equity, less any the costs of acquiring the equity. Excluded: research funding, copyright income (unless related to an LOA), non-cash value exchanged for equity holdings, value of equity not cashed-in, patent expense reimbursement, consultancies and contract research.
US	License income	Q6.4 What was the TOTAL LICENSE INCOME received at your institution? License Income Received: LICENSE INCOME includes license issue fees, payments under options, evaluation license fees, annual minimums, running royalties, termination payments, the amount of equity received when cashed-in, and software and biological material end-user license fees equal to $1,000 or more. It does NOT include research funding, patent expense reimbursement, a valuation of equity not cashed-in, software and biological material end-user license fees less than $1,000, or trademark licensing royalties from university insignia. LICENSE INCOME also does NOT include income received in support of the cost to make and transfer materials under Material Transfer Agreements. NOTE: The TOTAL LICENSE INCOME should be equal to the sum of your LICENSE INCOME attributed to RUNNING ROYALTIES, CASHED-IN EQUITY, and all other types. Q6.5 How much of the license income received was attributed to RUNNING ROYALTIES? Running Royalties: For the purposes of this Survey, RUNNING ROYALTIES are defined as royalties earned on and tied to the sale of products. Excluded from the licensing income attributed to RUNNING ROYALTIES are license issue fees, payments under options, termination payments, and annual minimums not supported by sales. Also excluded from this amount is CASHED-IN EQUITY, which should be reported separately.

		Q6.6 How much of the license income was attributed to CASHED-IN EQUITY? **Cashed-In Equity: This includes the amount received from cashing in equity holdings, resulting in a cash transfer to the institution. The amount reported should be reduced by the cost basis, if any, *at which the equity was acquired.* Excluded from this amount is any type of analysis or process whereby a value for the equity holdings is determined but a cash transaction does not take place through the sale of these holdings. An internal sale (eg, to the endowment) will constitute cashing-in if the transaction results in cash being made available for internal distribution. Q6.7 How much of the license income received was attributed to license income of ALL OTHER TYPES?** **Q6.8 In 2024, how many INTER-INSTITUTIONAL AGREEMENTS did your institution execute?** **Q6.9 How much of the license income was LICENSE INCOME PAID TO OTHER INSTITUTIONS?** **INCOME PAID TO OTHER INSTITUTIONS is directly related to INSTITUTIONAL AGREEMENTS and is designed to eliminate double counting of royalty income. NOTE: LICENSE INCOME PAID TO OTHER INSTITUTIONS is the amount paid to other institutions under INTER-INSTITUTIONAL AGREEMENTS (see Q6.8).** **LICENSE INCOME PAID TO OTHER INSTITUTIONS is the amount paid to other institutions under INTER-INSTITUTIONAL AGREEMENTS. The Survey subtracts it from the total license income of your institution to avoid double-counting license income when the receiving institution reports it to the Survey. See questions (Q6.8) and (Q6.9). If there is a lag between when your institution earmarks income to be paid to another institution and when that other institution receives the income, you should report that dollar amount in the year that it is received by the other institution.**

Appendix table 33: Consulting agreements

Source	Indicator	Questions (or descriptions) and definitions
ASTP	Consultancy Agreements	Consultancy means the provision of expert advice in a specific field by academics working in a PRO for the benefit of an external, non-academic organisation. Exclude consultancy agreements concluded by individual staff members directly with third parties (i.e. not through the PRO) or those that relate to research or technical services, testing of equipment and the like. The services do not typically involve experimentation, measurements, use of specialised equipment or generating new data (such activities would normally qualify as 'contract research') but make use of the academic's specialist knowledge and skills of the field in which he/she works.
BG	Consultancy and Expertise Agreements	Agreements handled by KTO for provision of expert advice – as a consultancy or expertise, in a specific field by researchers working in a PRO for the benefit of an external, non-academic organisation. These services may involve as a testing or validation experimentation, measurements, use of specialised equipment or generating new data.
CH	Other tech. transfer contracts	4.3 Number of other technology transfer contracts handled by your TTO Note: Please consider non-disclosure agreements (NDA), Material Transfer Agreements (MTA), consulting contracts, inter-institutional contracts, sponsoring, donations. Please do not include the contracts already considered for 4.1 and do not include license, option and sales agreements. Comment 4.1 - 4.3 (e.g. restrictions/regulations of your institution. Knowledge of ALL contracts or only contracts above a certain amount)
CZ	Innovation advisory services	"Consultancy, assistance, or training in the fields of knowledge transfer, acquisition, protection or exploitation of intangible assets or the use of standards and regulations embedding them, as well as consultancy, assistance or training on the introduction or use of innovative technologies and solutions (including digital technologies and solutions);" (European Commission (2022). Communication from the Commission Framework for State aid for research and development and innovation 2022/C 414/01)
DE	R&D service and consulting agreements	[Included under (research) contracts with industry. No further definition.]
ES	Technical support contracts	Technical support contracts include technical studies, consultancy, advice and activities that do not involve the generation of new knowledge. They also include the provision of technical services (laboratory services, testing, etc.).
FR	Service contract	A contract for the provision of services and expertise concerns a service provided by a laboratory/researcher to a private or public third party. This implies the delivery of a certain technical result in the performance of a specific task requested by the service provider, who covers the entire cost.

IE	Consultancy services	RPO provides professional-level work to an external client organisation through an academic, researcher or other member of RPO staff in exchange for a commercial fee. The work is specified (or agreed) by the client against deliverables agreed with the RPO. This may include Consultancy agreements, "Contract services" agreements and projects contracted under a work order. Characteristics of consultancy services: The purpose of consultancy is not typically the generation of new knowledge, rather it draws on existing knowledge. There will usually be no expectation of publication, results will be confidential and will be transferred to the client. The type of work might typically involve one or more of the following: advice; analysis; production of a report. Projects will generally be of a short term. (Excludes collaborative research, research grants, Academic collaboration, Training and provision of Continuing Professional Development (CPD)).
IT (PROs)	Consultancy	Activity carried out – for a specific fee – by the PRO, on behalf of external bodies, based on knowledge already existing at the PRO itself.
PL	Consultancy services	Contracts for expert, specialised services provided by university staff to external stakeholders
UK	Consulting contracts	This includes contract numbers and income associated with consultancy, that is advice and work crucially dependent on a high degree of intellectual input from the HE provider to the client (commercial or non-commercial) without the creation of new knowledge. Consultancy may be carried out either by academic staff or by members of staff who are not on academic contracts, such as senior university managers or administrative/support staff. Consultancy contracts are further analysed by SMEs, other (non-SME) commercial businesses and non-commercial organisations, as defined under Contract research. Consultancy is defined as the provision of expert advice and work, which while it may involve a high degree of analysis, measurement or testing, is crucially dependent on a high degree of intellectual input from the HE provider to the client (commercial or non-commercial) without the creation of new knowledge. Consultancy may be carried out either by academic staff or by members of staff who are not on academic contracts, such as senior university managers or administrative/support staff. All consultancy activities where there is income to the HE provider should be returned irrespective of staff contract type. Consultancy for other higher education providers based in the UK or overseas should not be included.
	Facilities and equipment related services	This includes the use and income associated with the use of the HE provider's physical academic resources by external parties, and captures provision which can be uniquely provided by a HE provider. The provision of these specialist facilities to an external party will have the purpose of supporting their business.

		The specialist facilities and equipment must be owned and used by the HE provider for the purpose of their core mission of teaching and research. **Examples may include aerospace company use of a HE provider's wind tunnel, or media company use of a digital media suite. It does not include simple trading activities such as commercial hire of conference facilities or academic conferences. Conversely, a theatre based on campus, and used solely as a community arts venue, or a conference centre that is used for academic conferences and commercial hire only would not be returnable, as they are neither owned and used for the purpose of their core mission of teaching and research, nor used for KE outside the higher education sector, and should therefore not be recorded under this head.** **Facilities and equipment related services - organisations involved and income are further analysed by SMEs, other (non-SME) commercial businesses and non-commercial organisations, as defined under Contract research.** **In some cases it may not be clear whether the income should be returned in this head or as consultancy. In deciding under which head to return income, consider what the primary output is. For example, if a company has paid for equipment use but the equipment is operated by a HE provider staff member and the output of the engagement is a report analysing the results using a high degree of intellectual input, this is more likely to be consultancy. If the company is simply paying to access the equipment, or the output is raw data with no added analysis, it should be returned under this head.**

Appendix table 34: Spin-offs, spin-outs, start-ups

Source	Indicator	Questions (or descriptions) and definitions
ASTP	Spin-off	A spin-off is a company expressly established to develop or exploit IP created by a PRO and with a formal contractual relationship for the use of this IP. Include, but do not limit to, spin-offs established by PRO staff. Exclude companies that have no formal agreement for commercially developing IP or know-how created by the institution.
	Active spin-offs	How many operating spin-off companies (in aggregate) were there at the end of FY2021? All operating companies do not have to be necessarily owned by the KTO/PRO.
	Start-up	A start-up is a newly registered company that is founded by PRO students or employees but that is not directly involved with the exploitation of intellectual property generated within that PRO.
BE	Spin-off	Start-up company with a licence on university IP.
BG	Spin-out	"Spin-out" is used specifically for a company in which the PRO has a share in the capital.
	Start-up	The term start-up is used when the PRO does not have a share in the capital of the new company, but licenses the IP to the company in exchange for royalties. A start-up is also a phenomenon in areas where the PRO has decided to adopt an Intellectual Property Policy that gives its researchers full ownership of the IP they create in the course of their scientific work. A PhD graduate can create a start-up company based on an idea that originated during their PhD studies. In this case, the PRO is not directly involved in the new company, but is considered to have a positive influence on the creation of the new enterprise. The PRO encourage entrepreneurship among their PhD students in this way, as they see it as a benefit to the local economy and an additional source of new SMEs.
	Spin-in	Spin-in is a term used to describe the colocation of a company to exploit academic facilities and expertise.
	Spin-off	A spin-off is a company that remains part of a PRO and exists to offer specialised consulting services without any intention of further expansion or full technology transfer.
CH	Start-up	Total number of start-up companies formed at your institution As "Start-up company" all enterprises should be considered, that had their first entry in the trade registry in the previous year and that have a business case dominantly based on research of your organisation and that have at least one (co-)founder with affiliation to your organisation (employee, graduate, alumnus).
	Start-up depending on LOA	Of these start-up companies, how many are dependent on license / option / sale agreement(s) with your institution?

	Start-up depending on know-how/tech.	Of these start-up companies, how many are dependent on unprotected know-how or technology of your institution (without formal agreement)?
	Start-ups with equity	Number of new start-up companies in which your institution holds equity.
CZ	Spin-off	A legal entity whose predominant activity consists in the use and development of the results of the research, development and innovation activities of a research organisation, in particular by transferring knowledge on the basis of a contractual relationship or on the basis of the contribution of the results of the research organisation to that legal entity.
DE	Spin-off	How many spin-offs were founded in the 2021 financial year? A spin-off is a company established to exploit IP generated by your scientific institution and which has a formal contractual relationship for the use of that IP (including the use of open source licences).
	Start-up	How many start-ups were founded in the 2021 financial year? A start-up is a newly registered company that was founded by students or employees of the scientific institution, but is not directly involved in the exploitation of intellectual property generated in this scientific institution and has no formal agreement to do so.
DK	Spin-out	13. Total number of spinouts during the Period Spinouts refer to new companies established based on agreements with the institution on the transfer or licensing of intellectual property rights – including spinouts established based on agreements with the relevant inventor to exploit a right in exchange for remuneration to the institution. Since a CVR number is required to enter into a legally binding agreement, the effective date of the agreement on commercial exploitation determines the periodisation. An explicit agreement between the parties is required. Special for reporting in 2025: Please add a note on whether your institution usually includes spinouts based on non-patentable software under this indicator (which should now be noted under indicator [13C]). This information is necessary to maintain the comparability of the numbers over time after the introduction of [13C]. The addition of indicator [13C] aims to ensure a uniform understanding and reporting of reported inventions (and reported software) as well as spinouts established based on these. 13A. How many companies have been established based on agreements with the institution under § 14, subsection 1 of the Researcher Patent Act? This refers to the situation where the institution has entered into an agreement with a third party on the commercial exploitation of IPR in relation to a company establishment, whether it is a

		transfer or license, and regardless of the form of payment (equity in the company, royalty, or other). 13B. How many companies have been established based on agreements with the institution under § 12, subsection 2 of the Researcher Patent Act? This refers to the situation where the institution has entered into an agreement with the inventor for the inventor to exploit the rights to their own invention in exchange for remuneration to the institution. (Voluntary) 13C. Number of companies established based on copyright on non-patentable software This refers to the situation where the institution has entered into an agreement with the inventor or a third party to exploit intellectual property rights in the form of copyright-protected software. Note: Companies established based on rights to software-based inventions that are protectable in the form of a patent or utility model should not be included here; they should still be noted under indicator [13A] or [13B] as before.
ES	Spin-off	Start-up company whose business is mainly based on knowledge generated by the university and which is contractually transferred to the company. Generally, but not necessarily, there is staff involvement.
	Start-up	A new company formed by entrepreneurs who may come from the university environment, but which is not based on knowledge generated by the university.
FR (SATT)	Spin-off	A spin-off or spin-out is a company created to develop or exploit a form of intellectual property originating from a public research laboratory, and which has a formalised contract for the exploitation of the IP. This therefore excludes companies that do not have a formal agreement allowing commercial exploitation of the IP or know-how created within the institution.
	Start-up	Newly created company with development potential, but not (necessarily) involved in exploiting a form of IP from a public research laboratory.
	Backed start-up (Start-up adossée)	Company with fewer than 20 employees, created less than 10 years ago, with a research collaboration or technology transfer contract (licence or exploitation contract) with a public research establishment on the site, set up after its creation (the IP is not at the origin of the creation).
FR (Curie)	Spin-off	Public research spin-offs: companies set up to exploit protected results (patents, software, know-how) from research establishments, with exploitation governed by a technology transfer agreement (assignment or licence).
	Supp. by public research (*adossées)*	Companies set up to receive assistance and support from research establishments via contracts for hosting trainees, access to equipment, etc.
IE	Spin-out	A registered spin-out company is an incorporated entity which at the time of formation was dependent on the exploitation of specific intellectual property rights of the RPO. The rights to the company can be linked to a specific

		researcher who was within the RPO at the time of company formation and who would be considered an academic founder. The RPO will hold equity in the spin-out and/or has issued the company with a licence to the IP. Exclude: start-up companies
	Active Spin-out	An Active Spin-out is an RPO-created spin-out company that is at least three years' post-formation and has at least one paid employee and has raised equity and/or has booked sales revenue. It is an incorporated entity which at the time of formation was dependent on the exploitation of specific intellectual property rights of the RPO. The RPO will have executed a licence to the spin-out for the IPR and/or will hold equity in the spin-out.
	Start-up	Company formed by staff or students from the RPO not based on knowledge or IP generated by the RPO and where there is no formal IP licence or equity share with the RPO.
IT (PROs)	Spin-off	A spin-off company is established by scientists, inventors, or employees of a PRO. These companies, based on PROs IPR, leverage technology, research findings, or expertise (know-how) developed through the scientific and research activities conducted within a PRO. Shareholders of spin-off companies may include both individuals, such as scientists, and institutions, such as the PRO. Spin-off companies are companies established (1) by university professors (or in any case by people with many years of experience in university laboratories) and/or (2) based on university IP and/or (3) in which the university has a stake in the share capital. It is therefore not sufficient for a company to be located in a university incubator for it to be defined as a spin-off enterprise.
	Active spin-off	Na
	Start-up	Na
LU	Active spin-off	Number of spin-offs that (a) exist for three years or more, or (b) with several employees, or (c) that generate revenues
PL	Spin-off	This is a company that is created on the basis of technology, research results or know-how developed within the scientific and research activities of a university, research institute or other research unit. These companies are often created by scientists, inventors or employees of academic institutions that commercialise the results of their research. The shareholders can be both individuals (e.g. scientists) and institutions (e.g. universities). (Meaning in general, within the general definition). Spin-off/out company: is a business entity created for the purpose of commercialising the results of scientific research or development work, which was created with the participation of a scientific unit or on the initiative of its employees. (defined by Statistics Poland)
	Start-up	Companies established for commercialisation of innovative ideas or technologies by the employees, students or alumni.

TR	Spin-out	Spin-outs are companies established primarily to commercialise intellectual property (IP) generated by university staff. This IP may belong to the university under general law or through the terms of employment, or it may have been assigned to the university by the staff member to facilitate commercialisation. Additionally, spin-outs may arise when significant university resources, such as funding or facilities, were utilised in the creation of the IP. The establishment date is considered as the date the spin-off is registered in the Trade Registry. Data scope: companies owned or co-owned by academic staff located in Technoparks/TEKMERs/Incubation Centers, or established through the TÜBİTAK 1512 Investment Based Entrepreneurship Support Program (BiGG Investment), or patent-based companies with net sales revenue exceeding 200,000 TL in the relevant year. Net sales revenue information is provided by the Ministry of Treasury and Finance.
	Student/alumni start-up	Start-ups are companies founded by the university students or alumni. Data scope: companies owned or co-owned by university students or individuals who graduated within the last 5 years, located in Technoparks/TEKMERs/Incubation Centers, or established through Investment Based Entrepreneurship Support Program (BiGG Investment), or patent-based companies with net sales revenue exceeding 200,000 TL in the relevant year.
UK	Spin-out	Spin-outs are firms founded primarily to commercialise intellectual property (including ideas, information, and knowledge) created by university staff, where the IP either belongs to the university under general law or under the terms of the contract of employment, or the member of staff has assigned the IP to the university to enable it to be commercialised, or where significant university resources (e.g. funding, facilities) were used to generate the IP. The foundation date is the date when IP and/or know-how is transferred-in to the firm (for example through a licence or assignment). For practical reasons regarding how the firm is set up, this date be may different from the legal date of incorporation. All new spin-outs founded in the reporting year (01 August 2023 to 31 July 2024, inclusive) must be included, regardless of the date of incorporation. The following approaches are listed in priority from highest (a) in descending order. Where more than one approach pertains, HE providers should return the first date available to them from the list below. a. For spin-outs where the IP has been protected (paragraph 5 refers) use the transfer date of the IP as the foundation date. b. For spin-outs where there is a formal contract or licence between the firm and HE provider that covers the IP/know-how, use the date associated with that agreement.

		c. For spin-outs where it is not possible to determine the transfer data of the IP/know-how, use the date of incorporation. A firm can be considered to have been founded to exploit IP and/or know-how that originated from within the provider, either when it has been founded with that explicit purpose and is actively exploiting the IP, or when an existing firm acquires IP with the intention of pursuing its commercialisation as its only or main activity at that point, and is demonstrably doing this. An example would be a firm set up by a member of staff (Staff start-up) that later acquires IP from the HE provider, the exploitation of which becomes its primary business focus. In this case, HESA would consider the former start-up to have become a spin-out. However, each firm may only be returned once in this Head during a reporting year. Ownership in a spin-out includes both legal and beneficial ownership. Ownership may be exercised through a group structure (for example where the spin-out becomes a subsidiary of a firm over which the HE provider exercises ownership).
	Spin-out with some HE provider ownership	These are spin-outs where the HE provider continues to have some ownership. Tracking should cease if the spin-out ceases to be active.
	Other spin-out	These are defined as spin-outs which have IP and/or know-how assigned to them and either have no ownership by the HE provider, or have exited from HE provider ownership. When a spin-out ceases to be a firm (whether independent or as a subsidiary of a group) or it ceases to be active, tracking should cease.
	Staff start-up	Staff start-ups are defined as firms where the HE provider has assisted in the creation of the venture. Start-ups must be formally registered, for example by incorporation as a limited company registered with Companies House. Staff start-ups are established by active or recent academic HE provider staff (i.e. those who have held a contract of employment within the past two years). The FTE for these staff members should be greater than 0.25. Sole traders must have notified HMRC that they operate independently or in a business partnership. Staff start-ups are not based on IP and/or know-how that has both emerged from within the HE provider, and which can be protected using legal means.
	Student start-up	Student start-ups can be recorded under this sub-head. This should include all new businesses started by (a) students currently registered at the reporting HE provider or (b) graduates who have exited the reporting HE provider with an award within the last two years, but only where, in the case of (a) or (b), there has been formal business/enterprise support from the HE provider.

		Much IP created by students will not be owned by the HE provider, and not all start-ups are based on IP and/or know-how. However, where a student founds a firm to exploit IP and/or know-how (for example, that has emerged from research originating within the HE provider as part of a sponsored project, rather than the student's own research, e.g. as part of a Master's programme), which can be protected using legal means (IPR) by the HE provider (for example where the student assigns the IP to the HE provider as part of a deal to support commercialisation) this will conform to the definition of a spin-out rather than a start-up, and therefore be more properly returned under sub-head 4ai or 4aii. This would then fall into coverage for Part C, also. Start-ups can have any corporate form and use any business model but there must be some form of registration (for example with Companies House) before they can be included in the record. Sole traders must have notified HMRC that they operate independently or in a business partnership. HESA would only expect this to cover students or graduates registered at and reported by the HE provider. Graduation should be taken to mean the point at which the student graduates from their studies, not completion of the business support programme.
	Social enterprise	Social enterprises include all legal organisational structures including charities and all business structures. Enterprise/ventures which are established to deliver products or services which bring about positive social change are reported. i.e. organisations that rate their success on their social outcomes equally or more than their commercial outcomes (only registered companies should be reported). Social enterprises may have been formed by students, recent graduates and/or staff. It is accepted that turnover and investment figures are by definition different from those provided for spin-outs and start-ups, but the data will be valuable in tracking public contributions from higher education. Unlike the other categories, the broad and informal definition used here includes all legal organisational structures including charities and all business structures. HE providers should report enterprise/ventures which are established to deliver products or services which bring about positive social change i.e. organisations that rate their success on their social outcomes equally or more than their commercial outcomes. Social Enterprises must be registered with a relevant body. This could be as a limited company with social impact defined in the governing documents, or, for example as a Community Interest Company (CIC), co-operative or charity.

AU/NZ	Start-up/ Spinout	Founded through licensing or assignment of IP and launched by the research organisation or by other parties.
US	Startup company	Q8.1 In 2024, how many STARTUP COMPANIES were formed that were dependent upon the licensing of your institution's technology for their initiation? As used in this Survey, STARTUP COMPANIES are new companies that were dependent on licensing your institution's technology for their formation. If a technology was licensed to an existing startup company that was formed to develop a different technology, this company should be counted as a SMALL COMPANY (see question Q5.14), not a STARTUP COMPANY. STARTUP COMPANIES, in this Survey, refer only to those companies that were formed specifically to develop the technology being licensed or optioned in the Survey reporting year. The company need not have been created during the Survey reporting year; a STARTUP COMPANY may be formed well in advance of when the actual license is signed, while the founders research and write the company's business plan and explore the feasibility of securing investors or grants. A company should be reported as a STARTUP COMPANY irrespective of whether the company was formed by the licensing institution OR by an entrepreneur, investor, professor, graduate student or a post-doctoral fellow. The key question is: *Was the company that licensed a technology formed specifically to license and develop the technology being licensed?* NOTE: Include only STARTUPS for which a license/option with your institution is foundational. Q8.2 How many of these STARTUPS have their primary place of business in your home state? Q8.6 Of the startups formed in 2024, in how many does your institution hold EQUITY?
	Active Startup	Q8.3 Of all startups formed based on your institution's technology (cumulative through this reporting period), how many were OPERATIONAL as of the last day of this reporting period? NOTE: Include only STARTUPS for which a license/option with your institution is foundational AND which still have business operations based at least in part on the original license. This question is not about how many of your institution's startups are still doing business. It is about how many of those startups are still doing business that is based at least in part on the original license of your institution's technology. This implies that your institution's license/option with the startup is still in force. Do not count startups with which your institution had a foundational license that has been discontinued. However, if a license has expired due to patent rights expiring and the company is still doing business based on the original licensed technology, it may be counted.

		Q8.5 Of all startups formed based on your institution's technology (cumulative through this reporting period), how many became NON-OPERATIONAL in 2024? Include only companies for which the licensing of your institution's technology was foundational AND which no longer have any business operations based on the original license. This includes startups with which your institution had a foundational license that has been discontinued. NOTE: Include only STARTUPS for which a license/option with your institution was foundational AND which no longer have any business operations based on the original license.
ZA	Start-up/ Spinout	A company that has been incorporated at CIPC for the initial purpose of commercialising a DISCLOSURE through rights granted to the company by the institution in an IP TRANSACTION, but excluding a company that has had other business interests who later enter into an IP TRANSACTION to also commercialise an ACTIONABLE DISCLOSURE. IP TRANSACTION - a LICENCE, OPTION or ASSIGNMENT or combination of these as applicable that is executed with the purpose of commercialising IP.

Appendix table 35: Impact – innovations (licensed technologies)

Source	Indicator	Questions (or descriptions) and definitions
CH	Licensed technologies	Number of your institution's licensed technologies that became available for consumer or commercial use last year?
IE	Products/serv. based on a license	Market launches of products or services in year based on RPO licence
UK	Regeneration funding	Regeneration funding is an important way for HE providers to invest intellectual assets in economic, physical and socially beneficial projects. The HE-BCI Survey counts regeneration as a proxy for direct economic and social impact. It is returned as income from the allocating public body. The majority of regeneration funding comes from European sources, specifically ERDF income (European Regional Development Fund), ESF income (European Social Fund (ESF)), UK Government regeneration funds, UK shared prosperity fund and development agencies in the UK including Region programmes (ONS Regions (former GORs)). However, any funding that enhances or increases knowledge transfer between the HEP and business and community partners may be included, which if not categorised above, is included in other regeneration grants and income from local and regional bodies or other sources.
US	Technologies for use	Q9.1 Did one or more of your institution's LICENSED TECHNOLOGIES become available for consumer (public) or commercial use in 2024? Q9.2 If you answered "yes" to the above question, how many of your LICENSED TECHNOLOGIES became available? Question (Q9) asks for LICENSED TECHNOLOGIES made AVAILABLE in the Survey year, and will be used to quantify public benefits derived in the Survey year. To answer this question, review your LICENSES/OPTIONS that are ACTIVE — see your response to (Q5.16) — and determine the LICENSED TECHNOLOGIES that became AVAILABLE during the reporting period. Technology or Technologies: A technology is the embodiment of an idea that results from the creative work performed by faculty, students or staff during research or teaching. Multiple technologies can arise from a single DISCLOSURE, or a single technology can result from a combination of DISCLOSURES. A technology can also take many forms; the most common are compositions of matter, processes, methods, devices, asexually reproduced plants and designs. Also common are works of expression such as software, photos and drawings. A technology is a single innovative idea, no matter how many patents, copyrights or disclosures may be associated with the technology.
ZA	Licensed dis-closures available for use	Licensed actionable disclosures available for consumer (public) or commercial use

Appendix table 36: Impact – value/activities of spin-offs and/or start-ups

Source	Indicator	Questions (or descriptions) and definitions
ASTP	Staff of spin-offs	How many staff members (FTEs) were employed by your operating spin-off companies (in aggregate) at the end of FY2021? Please disregard any change in the number of FTE after take-over or merger of the spin-off company by/with another company. Use the last FTE count before such event instead.
IT	Spinoffs with equity funding	Na
	Capital invest. in spinoffs	Na
	Staff of spin-offs	Na
	Revenues of spin-offs	Na
SE	Tax payments by start-ups	Na
TR	Revenues of start-ups	Net Sales Revenue of Student/Alumni-Owned Companies
	Revenues of spin-offs	Net Sales Revenue of Academic-Owned Companies (spin-offs)
UK	Estimated current employment of all active firms (FTE)	The number of new spin-out companies for the reporting period; the number still active which have survived at least 3 years (e.g. for C23032 companies founded 31 July 2021 or earlier); the number of active firms (the 'number' and 'number still active which have survived at least 3 years' plus those companies which have been active between one and three years); estimated current employment of all active firms (FTE); estimated current turnover of all active firms (£000s) and estimated external investment received (£000s) (from external partners but excluding investment from HEFCE (now OfS)/BIS (now BEIS) third stream funds). Note: estimates for estimated current employment of all active firms (FTE), estimated current turnover of all active firms (£000s), and estimated external investment received (£000s) (from external partners but excluding investment from HEFCE (now OfS)/BIS (now BEIS) third stream funds) are provided by HE providers where possible.
	Estimated current turnover of all active firms (£000s)	
	Estimated external investment received (£000s)	
US	Startups with equity funding	Q8.4 Of all your institution's startups that were operational in 2024, how many have raised institutional EQUITY FUNDING since being launched? This question is not about "SBIR mills" accumulating grant funds without advancing their business operations. In answering this question, include startups that have received dilutive funding, typically from venture capital firms, in exchange for stock via a priced funding round. Do not include companies whose external funding came only from the federal government like SBIR's (or from a provincial government in Canada), or from other non-dilutive

		funding from the institution or foundations, or other types of grants that were non-dilutive. **Institutional Equity: For the purposes of this Survey, Institutional Equity refers to dilutive funding, typically from venture capital firms, received by a startup company in exchange for stock via a priced funding round.**