ASTP 2021 Survey Report

on Knowledge Transfer Activities in Europe

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Foreword

ASTP is the pan-European association of Knowledge Transfer (KT) professionals with core missions to share best practices and develop competences among KT professionals. Part of this role involves undertaking an annual survey of KT activities which also allows us to create a better understanding of knowledge transfer resources, and activities. We are pleased to be able to present the Annual Survey Report with the data provided by respondents for Financial Year (FY) 2019. *At this time of publication, we are also starting to analyse the data for Financial Year 2020, so a further report should be forthcoming before the end of 2022.*

This Annual Survey Report draws on data from 519 Knowledge Transfer Offices (KTOs) across 26 countries for FY2019. Incremental increases throughout activities have been reported, see figure 1.

ASTP has been collecting and analysing data for many years now, greatly supported by collaborating National Associations (NAs). In particular we offer grateful thanks to the Danish Universities Denmark, French Réseau C.U.R.I.E, the German TransferAllianz, the Hungarian network ETTF, our colleagues from the Irish KTI, the Italian Association Netval, Spanish colleagues at RedOTRI, and UK Research England, for providing data from their national surveys.

ASTP's National Associations Advisory Committee (NAAC) continues to actively promote direct participation in the ASTP survey by their members. Many run their own national surveys using core ASTP survey questions, and we are delighted to work with those associations keen to build compatibility with the ASTP survey as they further develop and run their own surveys.

Those of you following our reports will be aware that the gathering of information about the KT activities across Europe is not only growing in visibility, but the associated issue of defining and understanding metrics of KT and their harmonisation remains an important issue. We take this opportunity to remind readers of the core work on this topic, the **KT Metrics Harmonisation Report**[1] of the Expert Group jointly run by the Joint Research Centre (JRC) and ASTP published originally in 2020. This work continues with the roll out of subsequent expert report to be published later in 2022, together with further updates on the development of new tools and a platform which will further the goals of providing better insights into the type of KT activities their outputs.

Chapter 4 expands insights into KT activities and the impact of COVID-19 on the work of our KTO community. A dedicated subgroup of ASTP Survey Committee developed a unique pan-European survey, of which the results were being carefully analysed. In addition to quantitative data, the qualitative experiences including new processes and impact on doing business were also shared in an **online webinar in December 2021**[2].

We look forward to continued collaboration with all of you, building on ASTP's longstanding experience in gathering and analysing transnational KT data, towards a joint goal: creating a resource for the KT community that gives a sense of the breadth and scale of its activities. Without the energy, experience and commitment of our many volunteers, this endeavour would be impossible and so we remain hugely grateful to all the members of the Survey Committee as well as to all of you engaging as respondents or other contributors.

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[1] Link to the KT Metrics Harmonisation Report: https://ec.europa.eu/jrc/en/publication/knowledge-transfer-metrics-towards-european-wide-set-harmonised-indicators

[2] Link to the recording of the webinar: https://www.youtube.com/watch?v=GezofGHULiY&t=3s

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1. Introduction

Knowledge Transfer is something we have been engaged in for many years, but when it comes to understanding, measuring and reporting on the activities, there remains no single approach. For many years, the ASTP surveys have been refining the type of data gathered to reflect a picture of the range of activities and outputs across our broad geography. The impact of research results is strengthened and expanded as a result of knowledge and technology transfer, not only for commerce, services and economy but also on health, policy, law as well as arts and culture. The purpose of this report is to provide an overview of the KT landscape at a pan-European level.

The report draws on the largest dataset ever available with 519 respondent KTOs from 26 countries, both within the European Union and beyond, with their full geographical scope featured in Table 1 and Figure 2. Annually, we in the ASTP Survey Committee, bring together and analyse data collected from two different sources: (1) data provided by individual Knowledge Transfer Offices (KTOs) who submitted their answers directly through our online questionnaire (2) data from National Associations that conducted their own national survey and kindly shared their compatible data with ASTP. Chapter 3 presents this dataset, focusing on the characteristics of KTOs (section 3.1.), Intellectual Property (section 3.2.), Agreements with Industry (section 3.3.), Commercial Contracts (section 3.4.), Commercial Revenue from IP (section 3.5.), Spin-offs and Start-ups (section 3.6.).

When collecting KT data on a pan-European level, we have to overcome several challenges namely the varying response rates, data harmonisation and standardisation. One of the most critical contextual issues which remains a challenge is lack of data around the relationship between volumes of research output of an institution alongside the resources available to support the knowledge transfer activities to drive translation of useful outputs. Continued collaborative working, with additional experts in the field of data gathering, is an ASTP goal as we continue to seek to address all such challenges; to enhance the quality of our survey.

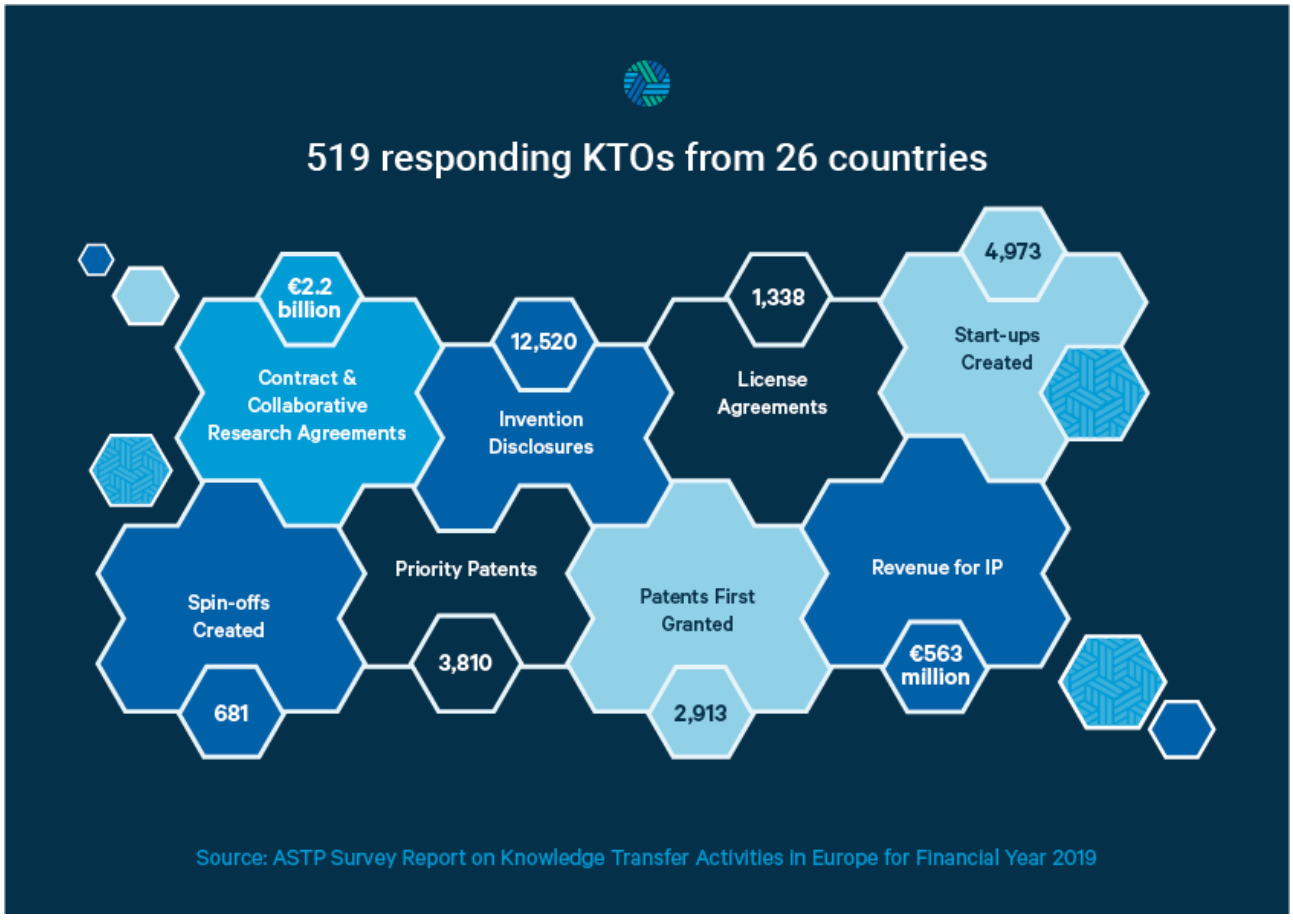

Figure 1: Overview of Survey Main Outputs and Findings

2. Survey Methodology

2.1. The FY2019 Survey

The survey consists of 26 questions. Excluding those questions pertaining to the name, contact details and whether the responding KTO agrees to share any data with a possible national transfer association, this leaves 24 questions relating to the activity of the KTO, including key parameters of the PRO(s) the KTO is serving. By comparison, the previous survey on the FY2018 data contained 27 such questions.

In terms of content, the questions are identical to those in last year's survey. There were only differences in the structure of a few questions. In detail, these are the following changes: Questions 19 and 20 were modified only slightly. Instead of (as in the previous year) having one question relating to the number of various types of license agreements and one question relating to number of option and assignment agreements, the present questionnaire addresses the total combined number of said agreements in question 19 and lists all said agreements individually in question 20. Two questions from the previous questionnaire were combined into one question (current question number 22) in order to further streamline the questionnaire. All other 24 question were identical to those of the previous survey.

2.2. Data Collection

Data collection started on 27 January 2021 and closed initially on 9 March 2021. At the request of a number of contributing KTOs, it was extended until 26 March 2021.

2.2.1. Respondents

ASTP collected FY2019 datasets from a total of 519 KTOs from 26 European countries. The datasets originate from two kinds of sources:

- KTOs that participated in the ASTP FY2019 survey which was sent to ASTP KTO members as well as individual KTOs in the ASTP database.
- NAs provided data that they collected by running national surveys. Care was taken to only include data that was compatible with ASTP's survey questions and definitions.

The 519 KTO datasets marks an all-time high and continues the trend from previous years of increasing number of KTOs covered in this survey (see table 1 for an overview of numbers in the years 2016-2019). While the majority of these datasets (444 out of the 519 mentioned above) were obtained via surveys conducted by or in collaboration with NAs which shared the dataset they collected with ASTP, 14% of the data was directly collected by the ASTP FY2019 Survey.

2.2.2. Data Received from Individual Knowledge Transfer Offices

Data from 79 individual KTOs were directly submitted to the online ASTP Survey. Just as in previous years, there was no obligation to answer all questions and indeed in many cases various questions remained unanswered (see respective tables below for further details). This may be because data were either confidential, not compatible with the definitions on which the survey was based or, probably in most cases, because the specific data were not tracked or reported by the KTO.

2.2.3. Data Received from National Associations

The majority of data (86%) were obtained from or in collaboration with NAs. As in the last year, this survey has adopted data either shared or published by the respective NAs of Denmark ("Universities Denmark"), Ireland ("KTI"), Italy ("Netval"), France ("Réseau C.U.R.I.E."), Hungary, ("ETTF"), Spain ("RedOTRI"), Switzerland ("swiTT") and "Research England" in the United Kingdom. Furthermore, this year data were collected in collaboration with the German NA ("TransferAllianz") for the first time.

Although progress has been made with respect to harmonising the questionnaires and definitions of respective terms between the ASTP survey and some NAs, some incompatibility still exists unfortunately. Thus, in some of the datasets received from NAs, substantial parts had to be disregarded due to incompatibility. We encourage our

partners to compare and ideally harmonise their own questionnaires to allow for an integration of their data in a broader European context.

In addition, ASTP teamed up with the KT Competence Centre of the European Commission to jointly work towards this ambitious harmonisation goal and first results, reporting on the Metrics in early 2020, are more fully described in Chapter 4 (below).

2.2.4. Response Rates

The absolute number of responses per country for the past four years is presented in the table below. It clearly shows that even though the number of responses varies considerably from country to country, the participation remains quite stable for most countries. The consistent increase in the total number of responses shows an appetite to be part of the KT metric landscape and its growing importance across Europe. In this context, it is also worth mentioning that this survey includes data from the Romania for the first time.

Country	FY2019	FY2018	FY2017	FY2016
	2021 (n = 519)	2020 (n = 512)	2019 (n = 475)	2018 (n=474)
United Kingdom*	166	165	166	162
Italy*	71	62	55	61
Spain*	70	71	71	69
France*	69	64	52	58
Germany*	29	21	12	18
Ireland*	25	25	27	24
Denmark*	12	13	14	10
Poland	11	15	10	9
Czech Republic	10	10	5	8
Belgium	10	9	9	8
Netherlands	9	10	8	13
Norway	7	7	4	3
Portugal	7	1	2	1
Austria	4	4	2	3
Switzerland	3	12	13	2
Hungary*	3	6	5	4
Finland	3	2	6	5
Slovak Republic	2	1	1	1
Lithuania	1	2	3	4
Turkey	1	2	2	3
Croatia	1	2	1	0
Iceland	1	0	0	0
Luxembourg	1	1	1	1
Malta	1	1	0	1
Romania	1	0	0	0
Slovenia	1	0	0	0
Sweden	0	3	4	4
Serbia	0	1	0	1
Estonia	0	1	0	0
Greece	0	1	0	0
Russia Federation	0	0	2	0
Latvia	0	0	0	1

Table 1: Overview of ASTP Survey response rates FY2019, 2018, 2017 and 2016

The number of responses per country, as shown in Table 1, is estimated to represent a fair proportion of KT activities for most countries in which KTOs responded to the ASTP FY2019 survey. Note that those indicated with an asterisk (*) are NA datasets or, in case of Germany, have been collected in collaboration with the respective NA.

To shed more light on the responses by countries, we calculated the relative response rates based on the number of KTOs that we contacted in respective countries (Figure 2).

Figure 2: Relative survey response rates across Europe

Figure 2 provides a geographic overview of the relative participation by country. The relative response rates per country have been calculated based on the number of KTOs that ASTP invited to participate in the survey in each country. The response rate for countries with no KTO participation is 0% and shown in grey.

2.3. Data Quality

Data cleaning was performed during the creation of the database which involved the incremental inclusion of information from various sources, starting with the primary data from the ASTP FY2019 Survey and the addition of secondary data from the NAs, as described above.

Initially, extreme outliers that were considered potentially erratic were flagged up in the FY2019 database. To aid this process, several cross-checks were implemented, e.g. via the calculation of ratios such as the research budget (Euro/FTE research staff). The premise for using such ratios as a tool for data checking is that – within any given country (but not between countries) – the average cost of research on an FTE basis can be expected to fall within a limited range, assuming that salary costs are by far the largest factor determining research budgets. If the research budget divided by the number of research FTE, were lower than what could be considered a reasonable gross salary in the respective country, then the research budget and the FTE research data would be flagged up as doubtful and removed.

Next, if possible, outlier data were followed up for confirmation/correction via phone or email with the person who submitted the data. If no (satisfactory) response was obtained, the outlier data was rejected, deleted from the database, and thus excluded from the data analysis. A total of 10 data outlier cases were formally followed up with the respective points of contacts receiving responses from 6 points of contacts.

Where mistakes in data entry were obvious, such data was corrected without consultation with the respective KTO. Double entries (where the KTO in question had responded directly to the ASTP Survey but also indirectly contributed data to the Survey Database, via e.g. an NA) were removed. In such cases, the most complete dataset of the two (invariably the one that was submitted by the KTO directly) was retained.

It is not uncommon in empirical databases that values for variables are missing. As indicated above, reasons comprise non-availability, confidentiality or incompatibility of data. It is important to note the total number of respondents for each question (indicated with 'n') varies and is indicated for each statistic.

3. Data presentation

The data received for FY2019 is presented in the following sections under a number of different subject headings. Emphasis has been placed on presenting it in a similar way to the previous report in order to better allow a comparison of data and identification of possible trends.

In the 519 datasets, not all respondents provided data for all of the questions in our questionnaire. This is why there is a different number of responses for each question. The actual number of respondents is shown in the sample size for a particular question, indicated with 'n=' in each graph. Since the volume and identity of responding KTOs is different from year to year, a direct comparison between the data presented in this report and that of last year's (or any previous year for that matter) is therefore not very meaningful but may identify general trends.

3.1. Knowledge Transfer Offices

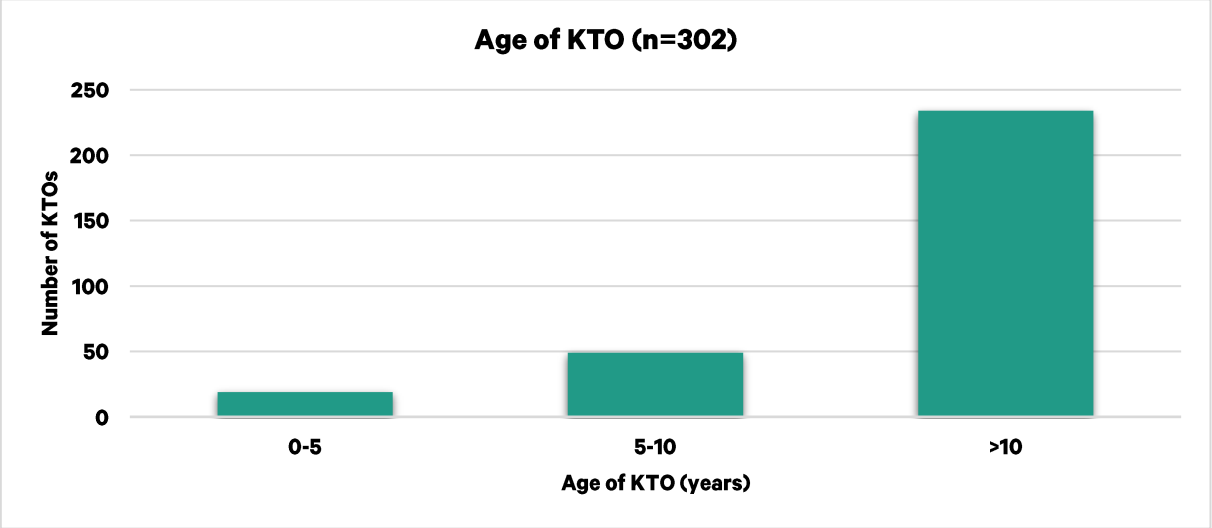

Figure 3: Distribution of KTO's age in number of years

This section presents data on the KTOs themselves (without considering the size of the organisation(s) the KTO is serving) focusing on staffing levels (including respective staffing levels for various typical core KTO functions) and budget as well as the number of PROs the KTO is serving and research expenditure/research FTE of respective PRO(s)). In the future it may be interesting to liaise further with national associations to understand whether there may be national policies or trends which affect the establishment, support and growth of KTOs in their regions.

In terms of the number of FTEs employed at an individual KTO, Figure 4 (below) shows that the among KTOs responding (n=318), the average number of FTEs is between 3 and 25. However we can also see that 13% (41/318) of KTOs are very small, with 2 FTEs or less, while 11% are very large, with more than 25 FTEs. The data presented would suggest that there is a correlation between the size of the institutions such that where more than 3000 researchers are being supported by a KTO, there is likely to be more than 20 FTE staff in the KTO. However, while the average number of FTEs is 12.38, the median is lower, at 7 FTEs.

In terms of the number of FTEs employed at an individual KTO, Figure 3 (below) shows most KTOs responding to this question (n= 318) fall between 3 and 25 FTEs. In more detail, 74 KTOs (=23%) employ between 2 to 5 FTE, a similar number 77 (thus 24%) employ between 5 to 10 FTE and a somewhat higher number (92, thus 29%) employ between 10 to 25 FTEs. Only a few KTOs are larger with 24 (=7.5%) comprising between 25 and 50 FTE with a further 10 of those 318 (=3%) being even larger. At the other end of the spectrum are 41 small KTOs (13%) with up to two FTE.

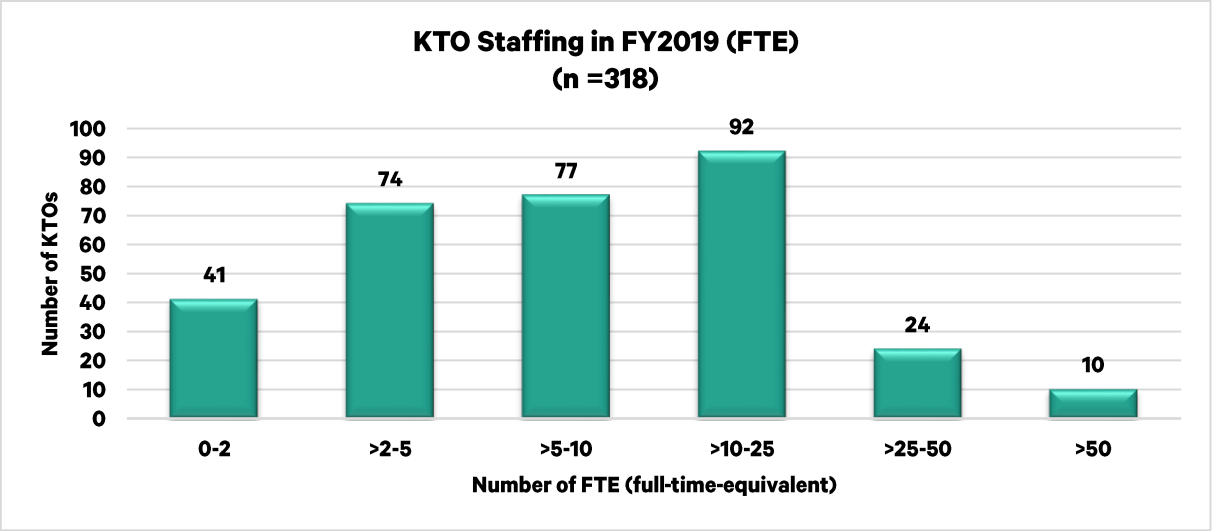

Figure 4: Distribution of KTO staffing levels in FTEs

To gain more insight into the activities of KTOs, we asked respondents to provide data on the share of the total FTEs within the KTO that are engaged in one of the following activities:

- Research support, including handling of MTAs, CDAs, Collaborative Research Agreements etc.
- Commercialisation activities, including IP protection and commercialisation, licensing, and consultancy agreements.
- Supporting entrepreneurship activities at PRO(s) including training, business planning and incubation.
- Business development including industry liaison.
- Other activities.

The proportion of the activities, listed above, across the spectrum of KTOs providing data regarding any of such activity is given in Figures 5 to 9.

The highest number of KTOs submitting data regarding their activities pertain to research support (188), commercialisation (188) and entrepreneurship support (188). However, only 100 KTOs submitted data on business development activities. One assumption for the lower number of KTOs providing data on the latter question might be that KTOs may have found it more difficult to answer this question.

It was noted that although the list of KTOs providing data pertaining to their activities in the fields of research support or commercialisation or entrepreneurship is largely overlapping, they are nonetheless not identical.

The distribution of the proportion of FTEs dedicated to dealing with research agreements is given in Figure 5. The proportion of this activity varied significantly across the spectrum of 188 respondents. Nearly half (39%, total number: 75) stated that of the five fields of activities listed in the questionnaire roughly a fifth of (between 10 and 30%) was spent thereon. In 34 of the respondents (total number: 18%) this activity made up a share of only 10% or less of their work, which is a lower than reported last year. However, for 31 of them (16%) providing research support occupied at least half of their FTE-capacity, thus making this service their prime and this is an increase from 11% last year. 21 of KTOs (11% of all respondents) spent even 60% or more of their FTE-resources on this activity, which is up from 4% last year. A general conclusion could be seen in a trend for more active support in research agreements.

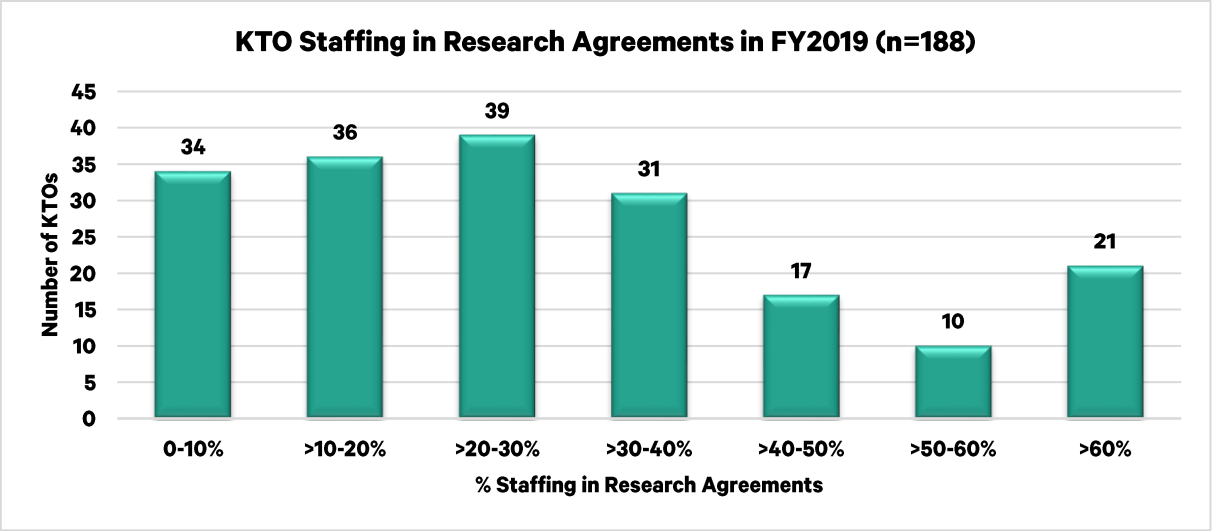

Figure 5: Distribution of KTO research support staffing levels in FTEs

Figure 6 indicates how much FTE effort in the responding KTOs worked on commercialisation activities. Notably, although a core activity of technology transfer, the variability among the responding KTOs is even higher than for the previous question. Less than half of the aforementioned KTOs (70 of 188) spent less than 20% of their FTEs on this activity, 18% (34/188) even less than 10%. 39 of the respondents (up to 20% compared with 16% last year) spent between 20 and 30% of their FTEs while 31 of them (16%) between 30 and 40% of their FTEs there on. The percentages decrease further with regard to KTOs spending either between 40 and 50% (10/188, thus 5%) or between 50 and 60% (10/188, thus 5%) of their FTE resources on commercialisation. However, this leaves another 21 KTOs (11%) allocating more than 60% of their FTEs to commercialisation. As seen before, a small proportion of responding KTOs not only seem to place a high emphasis on commercialisation but also have the ability to channel most of their resources into these activities. But the percentages reporting commercialisation resources have increased across all the bands.

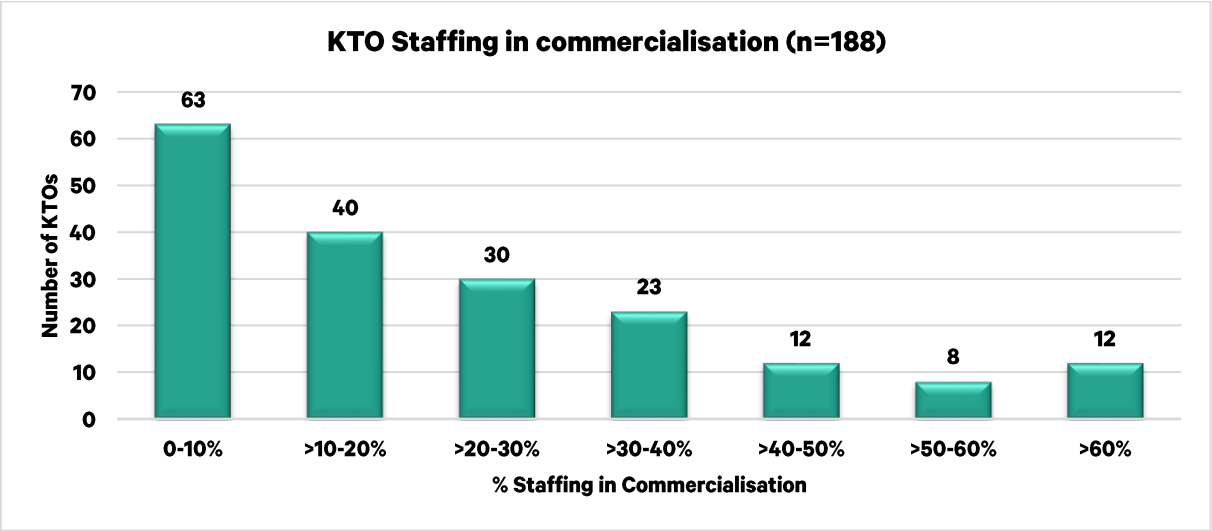

Figure 6: Distribution of KTO commercialisation staffing levels in FTEs

Figure 7 illustrates how much FTEs are deployed in supporting entrepreneurship within the group of responding KTOs.

In contrast to the two fields of activities discussed above, supporting entrepreneurship remains limited to only a portion of the KTOs. More than half (107/188) of said KTOs were either not at all involved in this activity or spend only up to 10% of their FTEs on this service. The number of KTOs spending 10-20% of FTEs thereon was 51 (=27%) and of those spending between 20-30% (18, thus 10% of respondents), between 30 and 40% (4, thus 2% of KTOs) and between 40 and 50% (4, thus 2% thereof) further declining. Only a tiny fraction of 3 KTOs (=1%) placed more than 50% of their FTEs into on this activity.

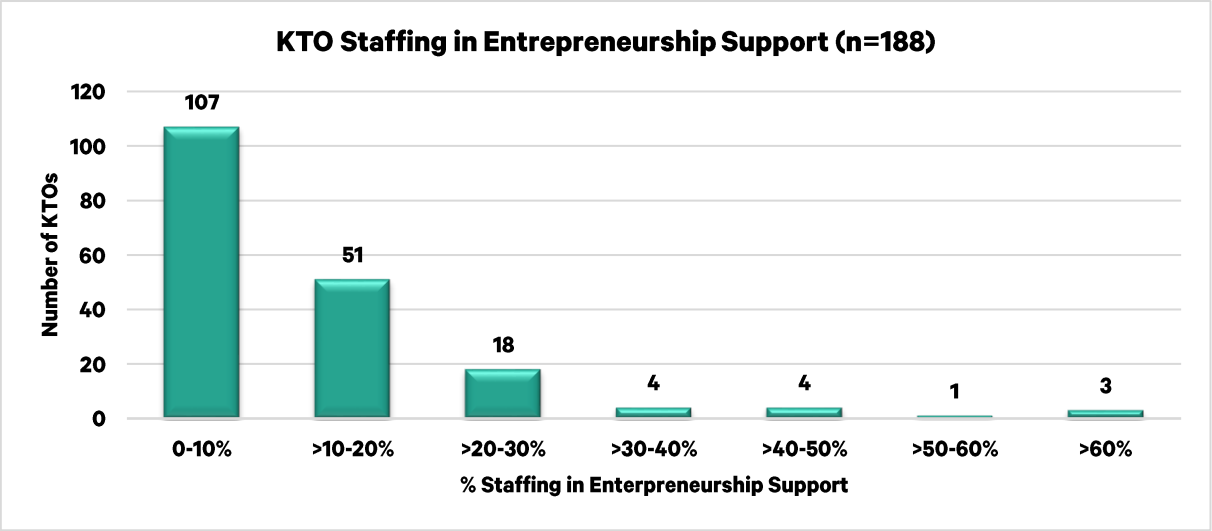

Figure 7: Distribution of KTO entrepreneurship support staffing levels in FTEs

As shown in Figure 7 for most of the 100 KTOs providing data on this activity, business development plays only a minor role. 56% of those KTO spend less than 10% of their FTEs on business development activities as defined herein. The total proportion of responding KTOs spending at the most 20% of their activities in this field is 84%. The total proportion of KTOs spending up to 30% hereon adds up to even 93%.

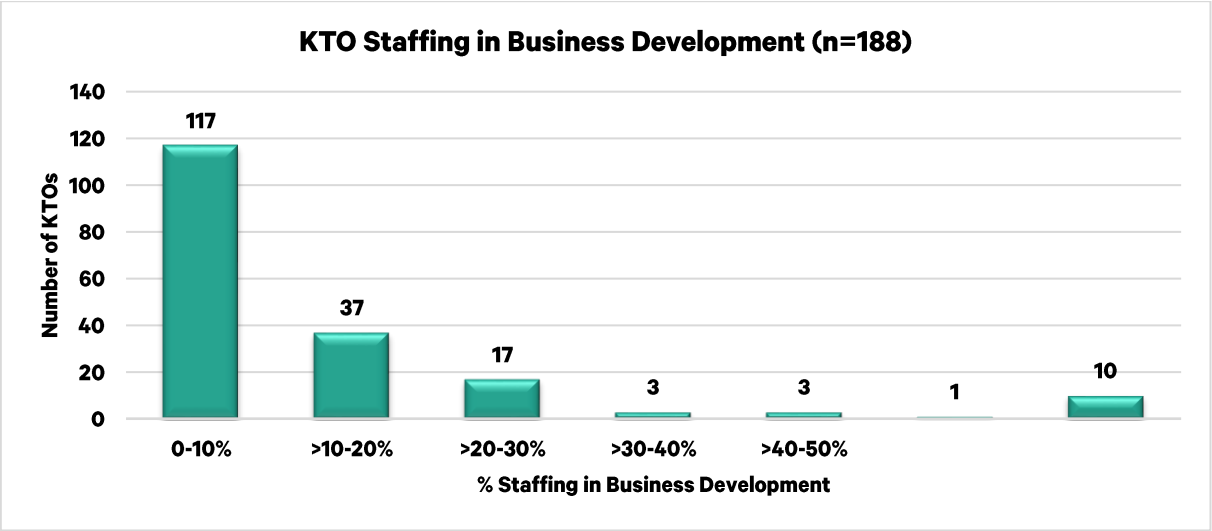

Figure 8: Distribution of KTO business development staffing levels in FTEs

Overall, of the five different fields of activities listed in the questionnaire, the total proportion of FTE tasked with research support is highest with 30,7 % (see Figure 8), with the proportion of FTEs spent on commercialisation activities being second (24,5 %). Pooling the data, the different KTOs shows that overall a similar proportion of FTEs is spent on business development and entrepreneurship support (around 10% each).

This analysis however is only based on the data from those KTOs that submitted data on all five fields of activity as listed in the questionnaire.

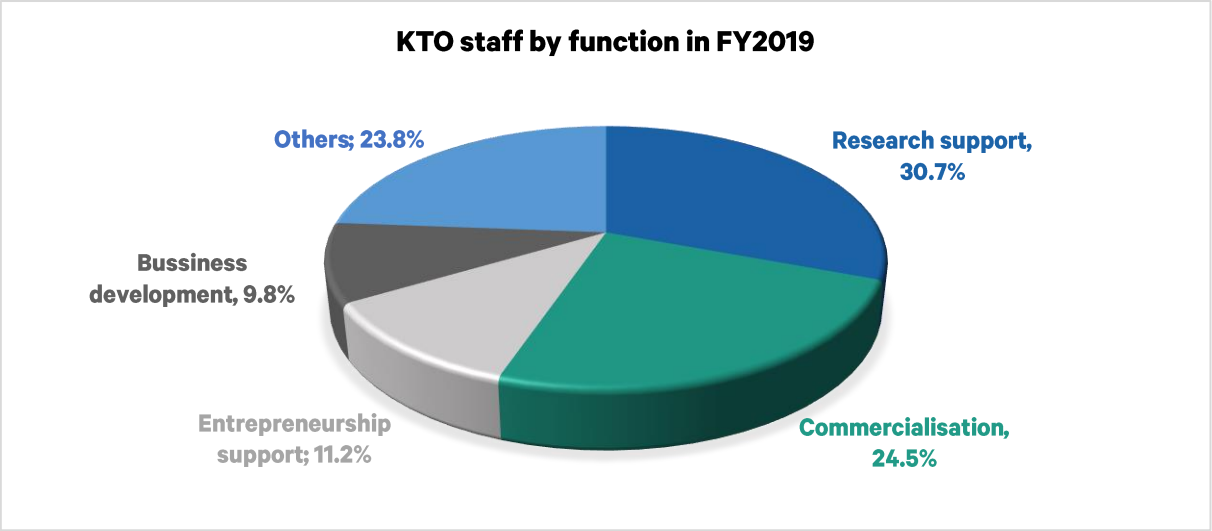

Figure 9: Distribution of KTO staff across major KTO functions

Furthermore, data was collected with respect to the number of PRO(s) the respective KTOs are serving.

Most KTOs serve a single PRO (94%) and some KTOs report data for multiple PROs, with 3% serving 2 different research institutions, and 2% serving between 4-7 PROs. Only a minority of 1% operates on behalf of 10 or more research institutions (Figure 9). This latter group includes KTOs from Germany and Norway only.

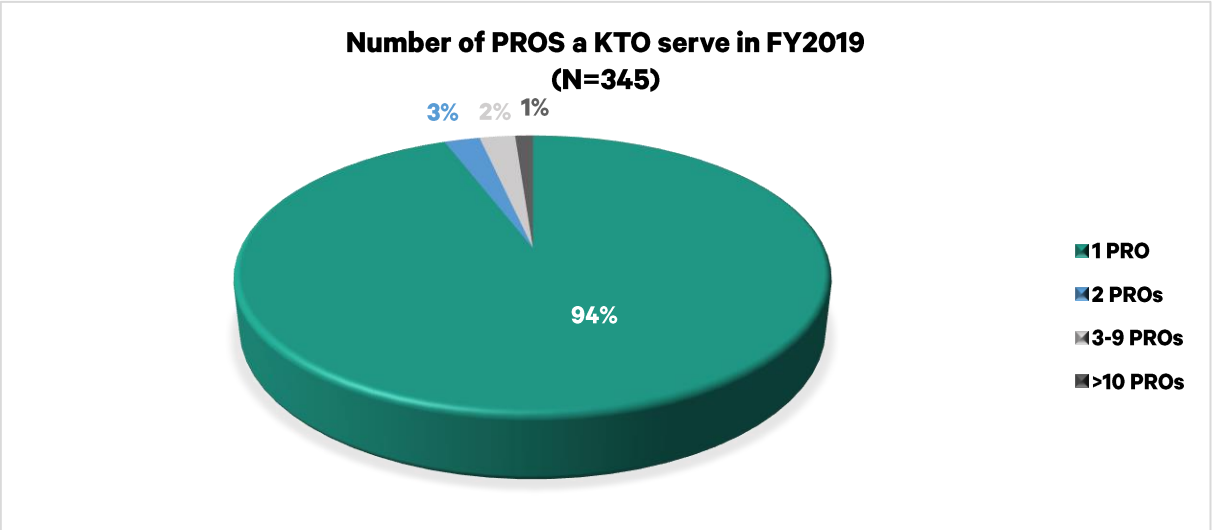

Figure 10: Distribution of the number of PROs that a KTO serves

In order to normalise for organisation size and perform some analysis on the metrics, we asked KTOs to provide us with two metrics for the PROs that they serve: the PRO Research Expenditure and the PRO Research Effort expressed in FTE. The distribution of PROs Research Expenditure and PROs Research Effort (FTE) is given in the following two graphs (Figures 10 and 11), including the cumulated data provided by KTOs which serve several PROs. The distribution on both metrics is very similar to last year's data.

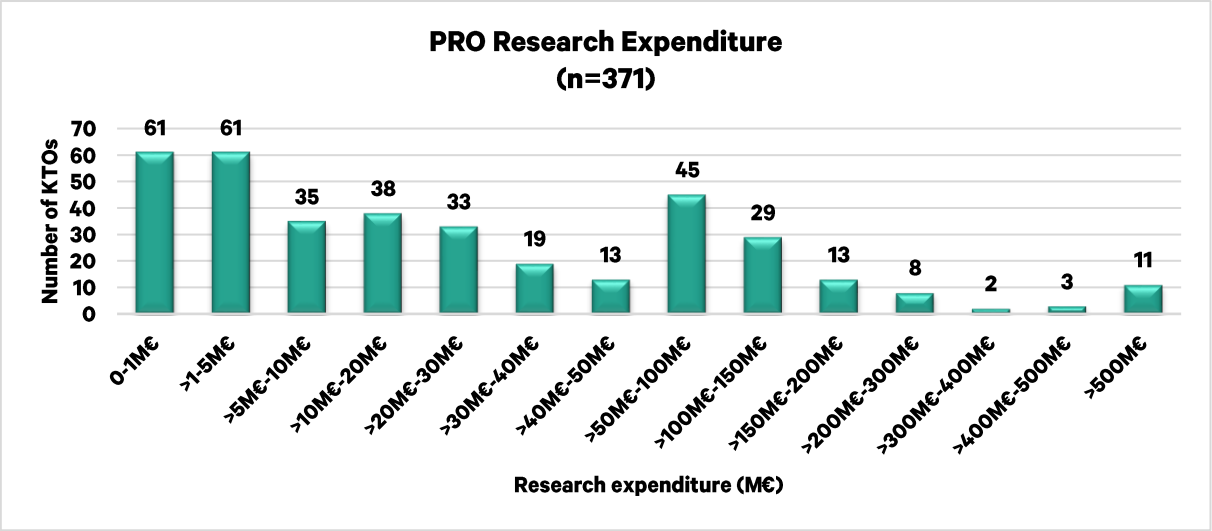

Figure 11: Distribution of PRO research expenditure

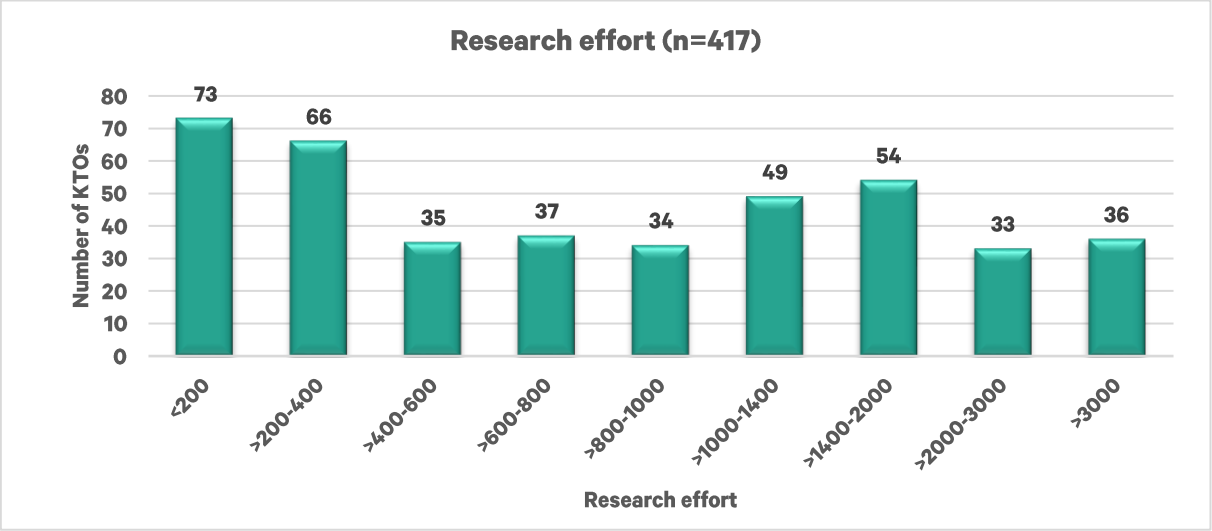

Figure 12: Distribution of PRO research effort in FTEs

The last topic of interest regarding the KTOs themselves is the amount spent by the KTO (and/or the PRO) on IP protection (Figure 12). Though a small minority (14/223, thus 6%) of the KTOs have not spent any money on IP protection, most offices report spending at least some money on this, with around 45% of offices having spent a minimal amount of up to 50k€ on IP protection in FY2019. However, there are also 10 KTOs which have spent more than 1m€, 3 of those even more than 2m€ on this issue.

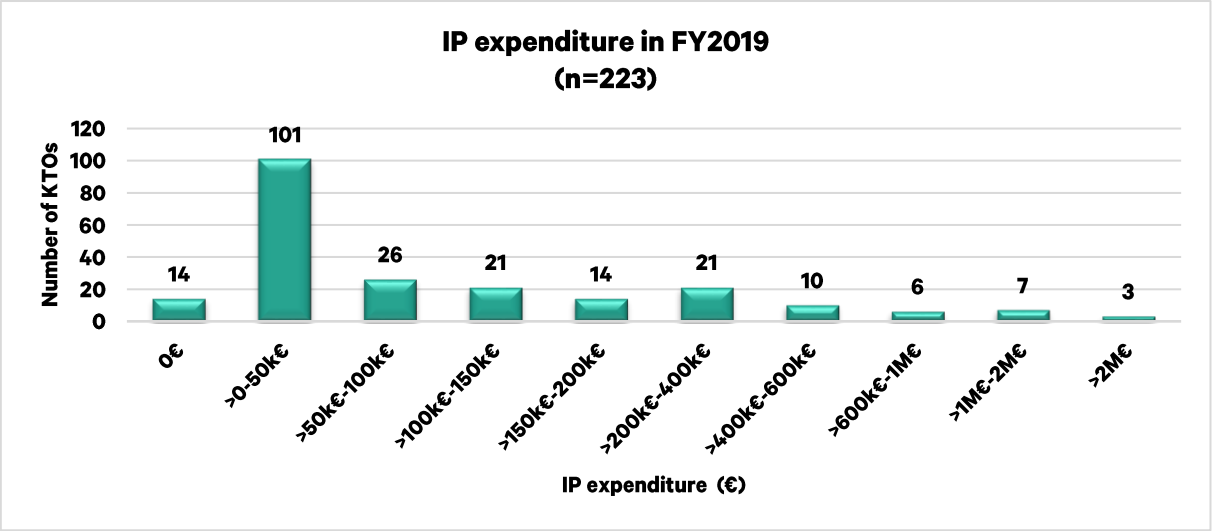

Figure 13: Distribution of out-of-pocket intellectual property protection costs

3.2. Intellectual Property (IP)

IP management has always been a core activity of KTOs, as it provides the basis for the commercialisation of research results. The output of the IP management activity are not only quantitative indicators, but may also refer to the strategic focus of the PRO in terms of KT. The present section provides an overview of IP activities of the respondent KTOs.

Table 2 shows the total reported number of invention disclosures, priority patent applications and patents first granted to KTOs in FY2019[3]. It is worth noting that the number of valid responses varies across the three categories: while most KTOs report on invention disclosures, significantly fewer do so on priority patent filings (mainly due to the fact that the definition of priority patent applications used in some of the datasets from National Associations is not compatible with the definition used in the ASTP Survey).

The total number of invention disclosures has slightly decreased (-9%) compared to the data presented in FY2018. The total number of priority patent applications is also lower this year. As the number of reporting KTOs in these two metrics is quite similar to the number of reporting KTOs last year, we see that the trend in increasing disclosure rates observed last year has stopped.

KTO's IP Activities	No. of responding KTOs (n)	Total
No. of invention disclosures	484	12,520
No. of priority patent applications	316	3,810
No. of patents first granted	272	2,913
No. of active patent families	307	38,056
No. of licensed or optioned Patent families	148	3,367

Table 2: Total number of KTO's Intellectual Property Activities

We can see from Figure 14, that 22% of KTOs reported not receiving invention disclosures at all during FY2019.

Compared to FY2018, the pattern of the graph is largely similar, and the distribution has not changed significantly: 28% of the respondents received up to 10 invention disclosures, 16% of them received more than 50 disclosures

[3] See Appendix 2 for the definitions in the survey for questions 14, 15 and 16 respectively.

and 31 KTOs received more than 90. On average, KTOs received nearly 26 invention disclosures in FY2019, with a median of 9.

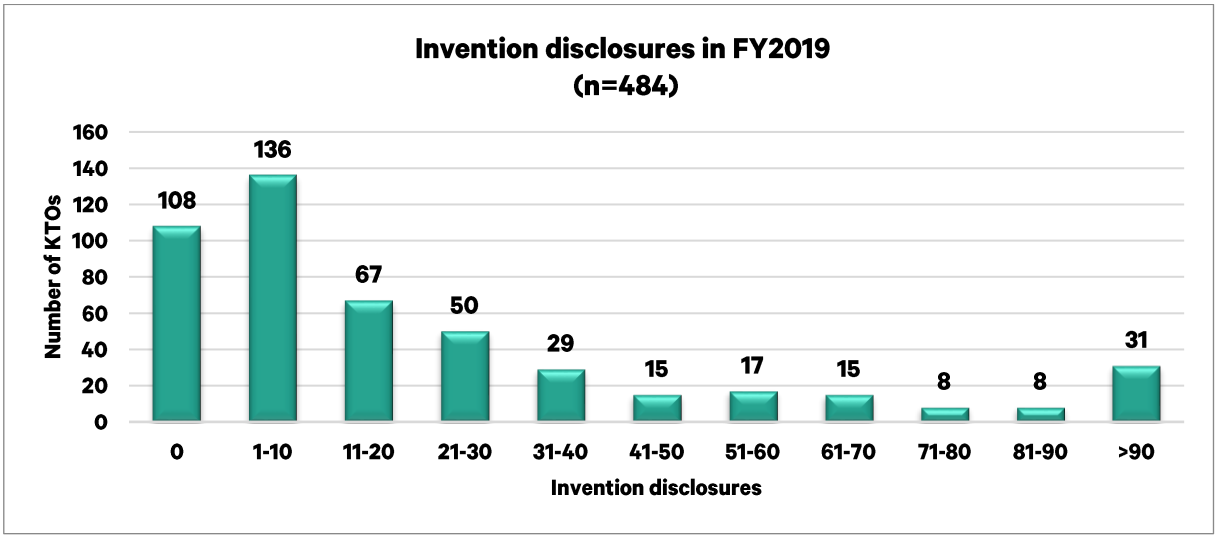

Figure 14: Distribution of the number of invention disclosures

In terms of the number of priority patent application per KTO, the absolute number of responses is lower than for invention disclosures. This is partially explained by the fact that no compatible data on this metric was available from the UK dataset. It has a different definition for this indicator, including all Patent Cooperation Treaty (PCT) applications in the number of new patent applications.

Compared to the FY2018 report, Figure 15 shows a similar pattern. Out of the 316 respondents, 17% reported not filling a priority patent application in FY2019. Slightly less than half (46%) of the KTOs reported to have filed between 1-10 patent applications. Nearly one third of the respondents filed between 11-50 priority patent applications (32%) and only a relatively small number filed more than 50 (4%). On average, KTOs have filed 12 priority patent applications, with a median of 6.

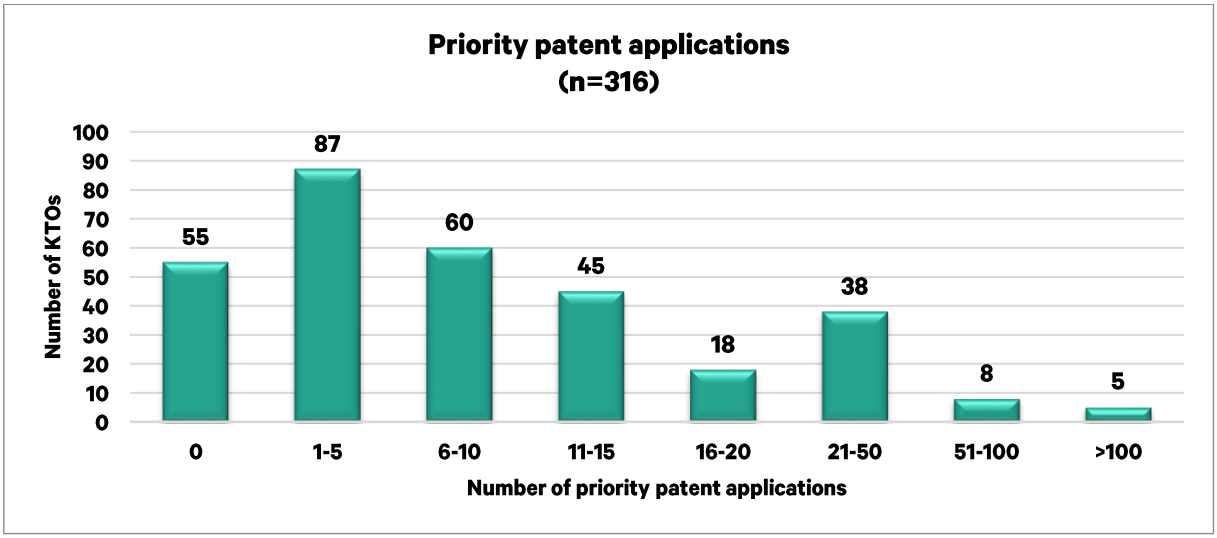

Figure 15: Distribution of the number of priority patent applications

Figure 16 shows the number of patents first granted per KTO in FY2019. It is immediately clear that most respondents (36%) reported between 1-5 patents granted in that year. The distribution pattern did significantly change year-on-year. Just as in the previous periods, only a few KTOs reported to have been granted over 50 patents in FY2019.

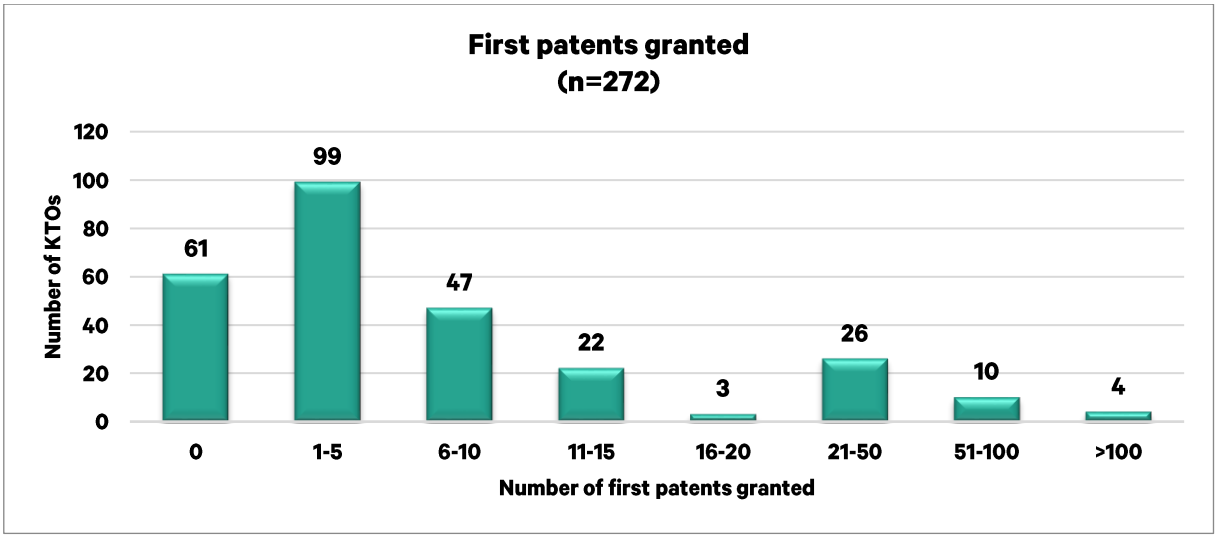

Figure 16: Distribution of the number of first patents granted

Figure 17 shows the number of active patent families in the KTO's portfolio at the end of FY2019. A total of 307 KTOs reported 38,056 active patent families. Compared to the FY2018 report, this represents a 24% increase, as the number of respondents remains roughly the same (293 in FY2017).

Alongside this upward trend, the distribution pattern has also significantly changed from last year's as the graph shows a shift towards the mid-range: the ratio of respondents reporting between 11-50 has significantly raised (6% to 27%), and the same is true for the ratio of respondents reporting between 51-100 (6% to 15%) and 101-150 (6% to 11%). The ratio of respondents having a portfolio consisting of above 151 patent families remains the same (23% vs 22%).

Furthermore, our findings suggest that 14% of the reporting KTOs have 1-10 active patent families and a relatively small fraction (9%) of the respondents reported zero active patent families.

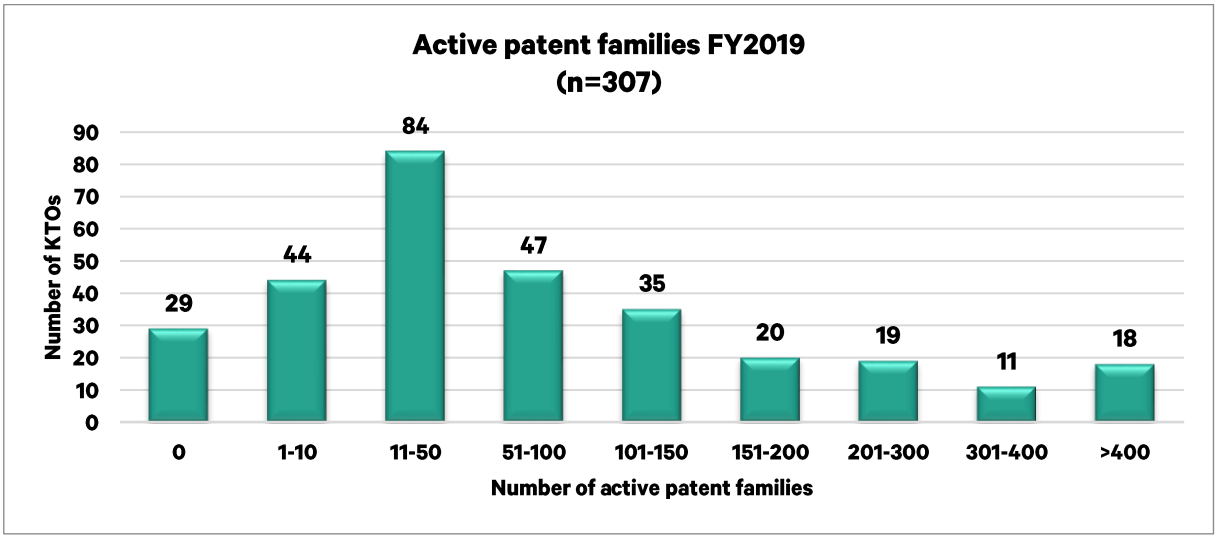

Figure 17: Distribution of the number of active patent families across KTOs' portfolio

The following graph in Figure 18 shows the percentage of patent families per KTO licensed or optioned by the end of FY2019, showing the cumulative licensing activity until the end of 2019 (and not only the activity that took place in 2019). The number of responding KTOs is significantly lower than for the active patent families, since no compatible data on this metric was available from some of the national datasets.

Nearly 14% (20/148) of the responding KTOs has a patent portfolio with no license nor option. 22% (33/148) of the responding KTOs have licensed or optioned up to 10% of the patent families in their portfolio, and a slightly higher number, 24% (36/148), has licensed more than 10% and up to 20% of the patent families in their portfolio. Although higher proportions of licensed/optioned portfolios are less frequent, it is noteworthy that 12% of responding KTOs (18/148) has over 50% of the patent families in the portfolio licensed or optioned, a proportion that is higher than the 8% observed last year for this category.

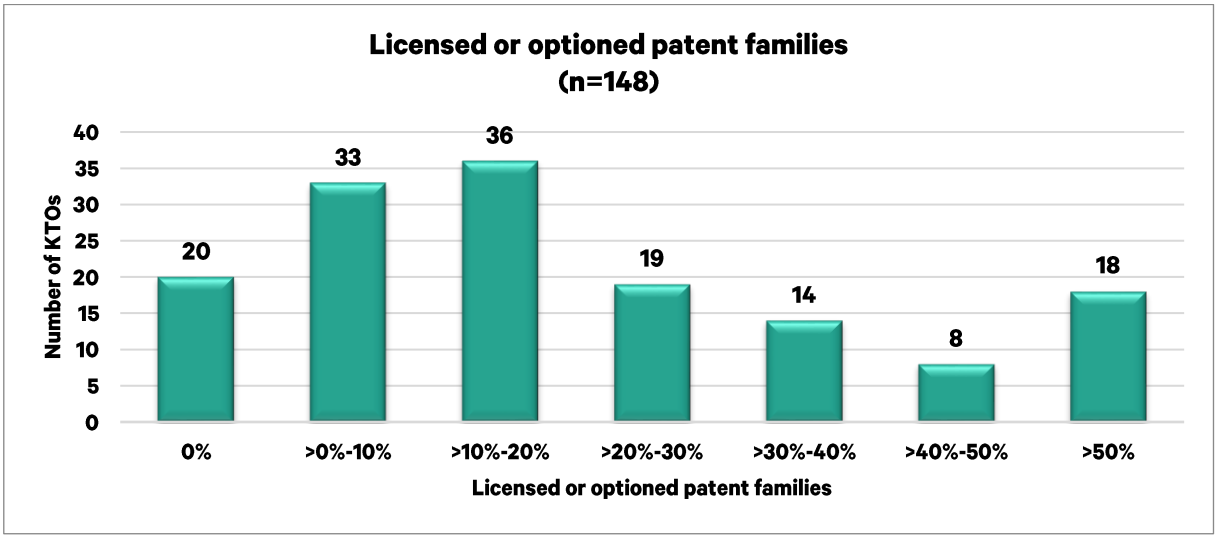

Figure 18: Distribution of the percentage of patent families in portfolio that are licensed or optioned

The final graph in this section demonstrates the overall ratio of commercialised patent families: slightly less than a fifth (18.4%) of the total number of active patent families reported by 148 KTOs were licensed or optioned by the end of FY2019.

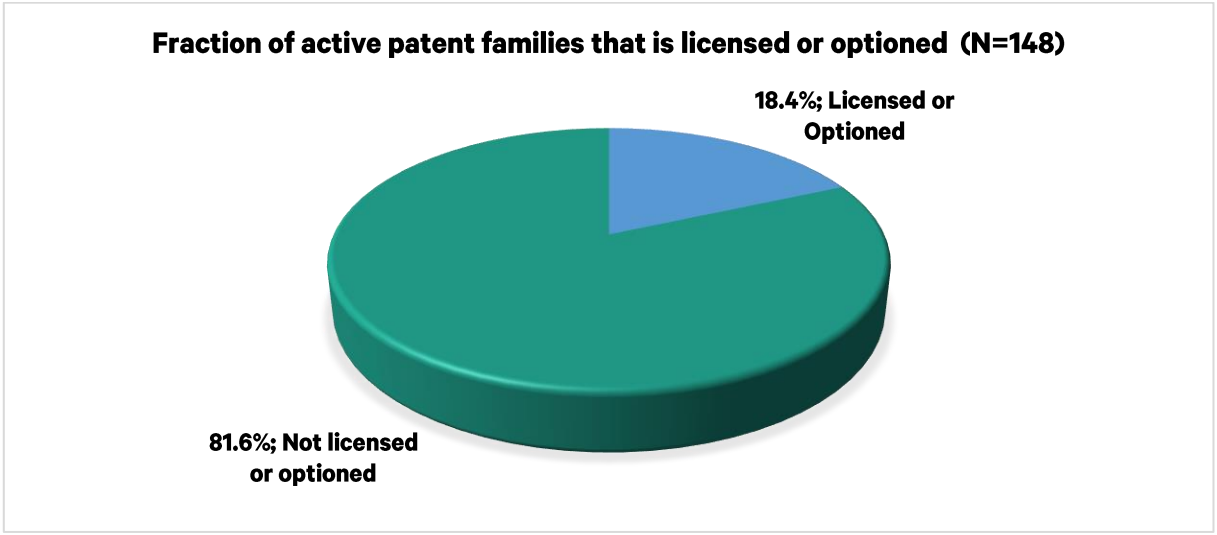

Figure 19: Percentage of patent families that are active at the end of FY2019 and are licensed or optioned

3.3. Agreements with Industry

In FY2019, European KTOs reported that a combined total of 177,784 agreements with industry have been concluded. A breakdown of these number across different industry agreement types are given in Table 3.

New industry agreements	No. of responding KTOs (n)	Total
Contract Research Agreements	352	35,363
Collaborative Research Agreements	186	10,286
Consultancy Agreements	334	131,133

Table 3: Overview of the number of contract research, collaborative research and consultancy agreements

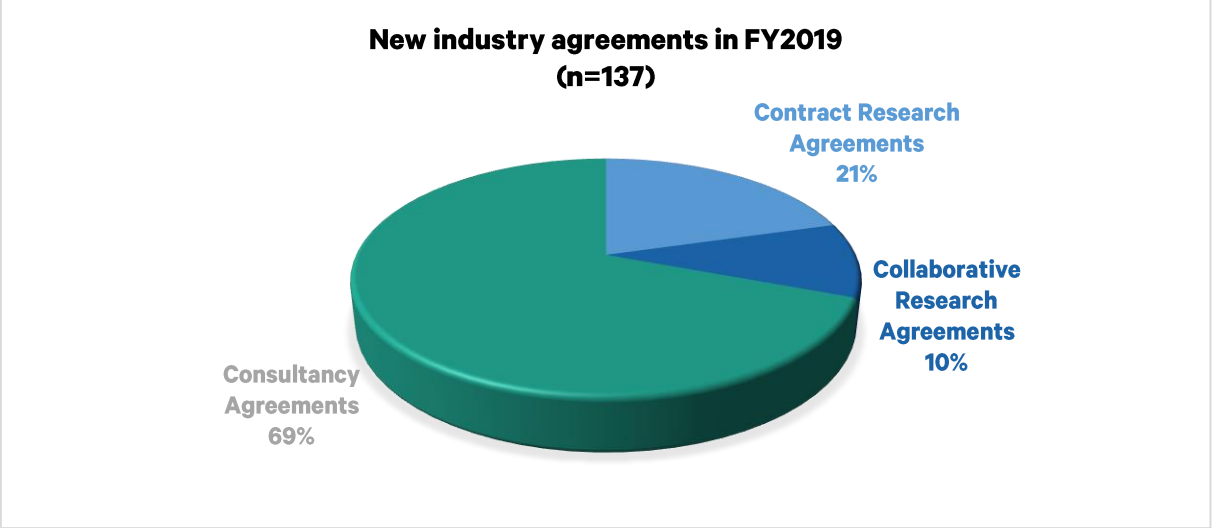

Figure 20: Percentage of new industry agreements signed

As this report has shown in the past few years, consultancy agreements are the most frequent form of engagement between academia and industry, with this year's overview in Figure 20 showing numerically 69% of industry agreements falling under this category. Least numerous (10%) are Collaborative Research Agreements and Contract Research Agreements representing the remaining 21%. The variation in numbers from last year's survey shows no significant change. Figure 20 reflects only the 137 respondents who provided a full answer to all sub-questions.

In terms of contract value shown in Table 4 (below), the total had fallen from €2.8 billion in FY2017 to just under €1.5 billion in FY2018 but has bounced back again to 2.7 billion in FY2019.

Income from Industry agreements	No. of responding KTOs (n)	Total (€)
Contract Research Agreements	332	1,384,447,767
Collaborative Research Agreements	145	825,292,501
Consultancy Agreements	303	506,807,932

Table 4: Income generated from research, collaborative and consultancy agreements

Figure 21 (below) shows that the most significant contribution by agreement with industry comes from collaborative research agreements, accounting as previously for half of all value received. Consultancy agreements represent only 18%, reflecting the fact that these involve individual researchers and usually short-term projects, as

compared with either contract or collaborative research projects utilising teams of researchers and access to infrastructure and materials.

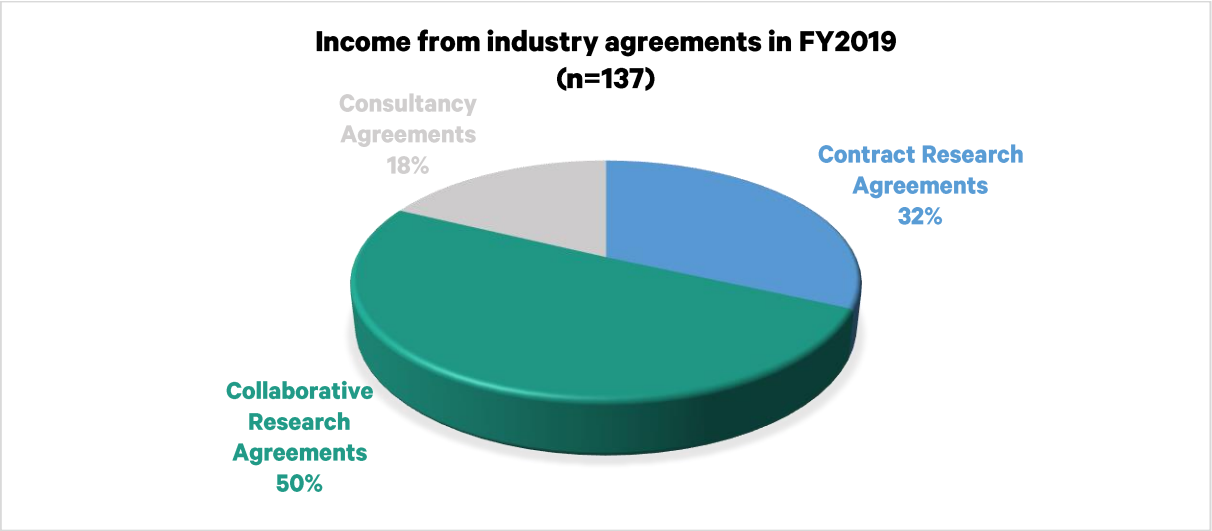

Figure 21: Percentage of income generated from research, collaborative and consultancy agreements

3.3.1. Contract Research Agreements

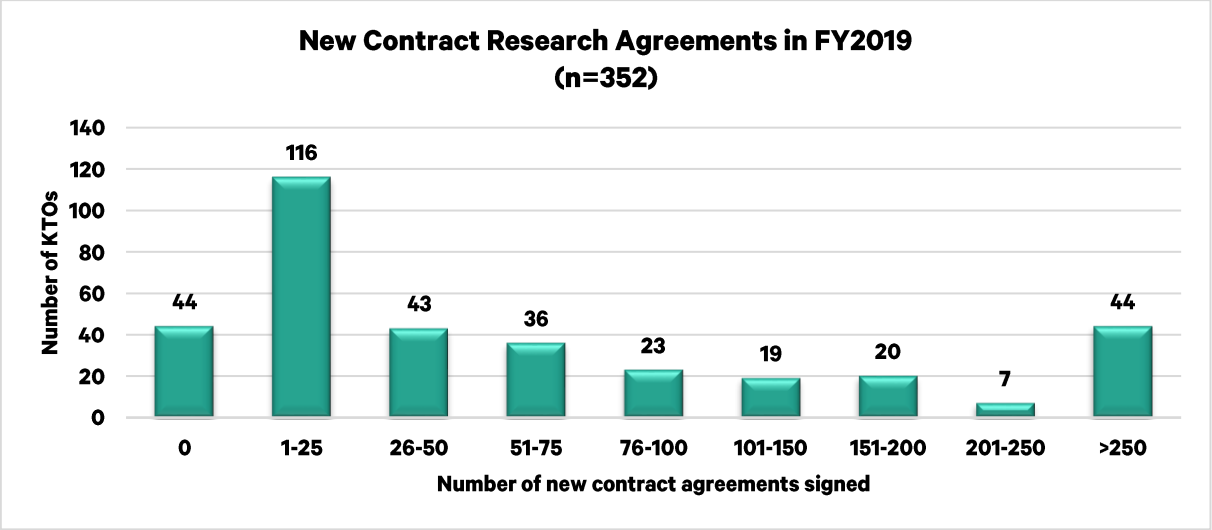

Figure 22: Distribution of the number of new contract research agreements signed

When we then go across to look at the distribution of these new contract research agreements, we can see that 33% of the KTOs entered into between 1 and 25 such deals, with the third highest frequency of between 26-50 such new agreements being entered into by 12% of offices. If we exclude those offices reporting zero new agreements, then the second highest frequency of 12,5% surprisingly can be found to be entering more than 250 new Contract Research Agreements in 2019.

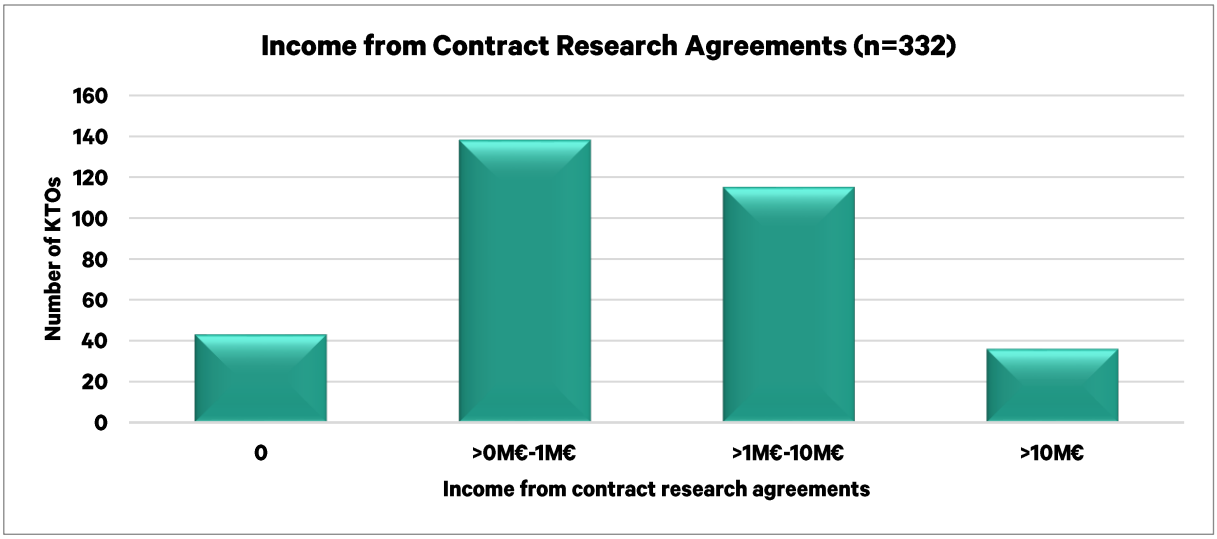

Figure 23: Distribution of the gross amount received from contract research agreements

In Figure 23 we can see that 12 % of respondents report receiving nothing. After excluding the Zero values, 48% of respondents received less than 1M€, while 12 % actually received in excess of 10M€.

3.3.2. Collaborative Research Agreements

Figure 24 (below) shows that 13% entered into over 100 agreements while 58% entered fewer than 25 collaborative research agreements.

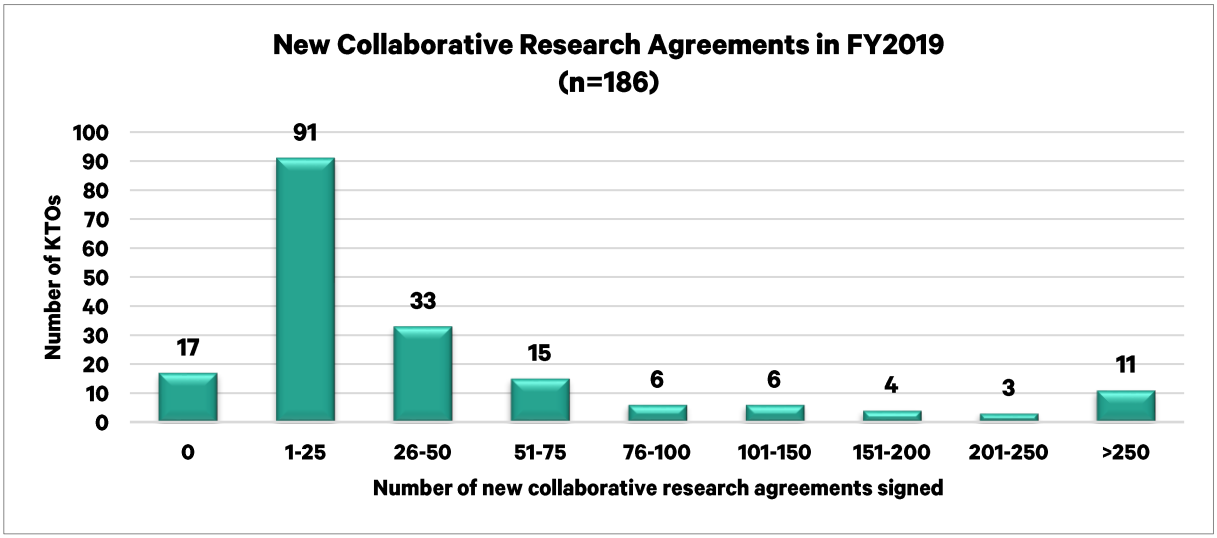

Figure 24: Distribution of the number of new collaborative research agreements signed

When we turn to look at the corresponding analysis of the value of income reported in Figure 25 (below), we see that 27% of KTOs report value up to 500k€, while at the top end of the spectrum 11% of KTOs report receiving income greater than 10M€.

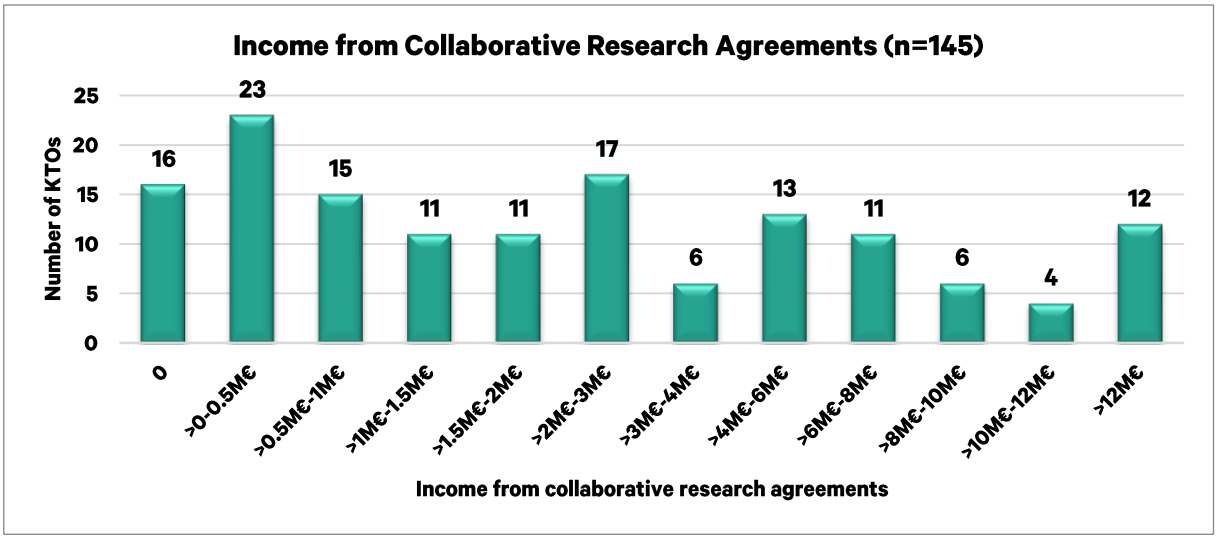

Figure 25: Distribution of the gross amount received from collaborative research agreements

3.3.3. Consultancy Agreements

The number of KTOs reporting consultancy agreements remains quite significant (334 vs 342 last year). The distribution pattern remains similar with the largest category being up to 25 consultancy agreements entered into (28%) with confirmation that other category which shows the highest level of incidence is the highest one, with almost 20% of KTOs reporting more than 300 consultancies.

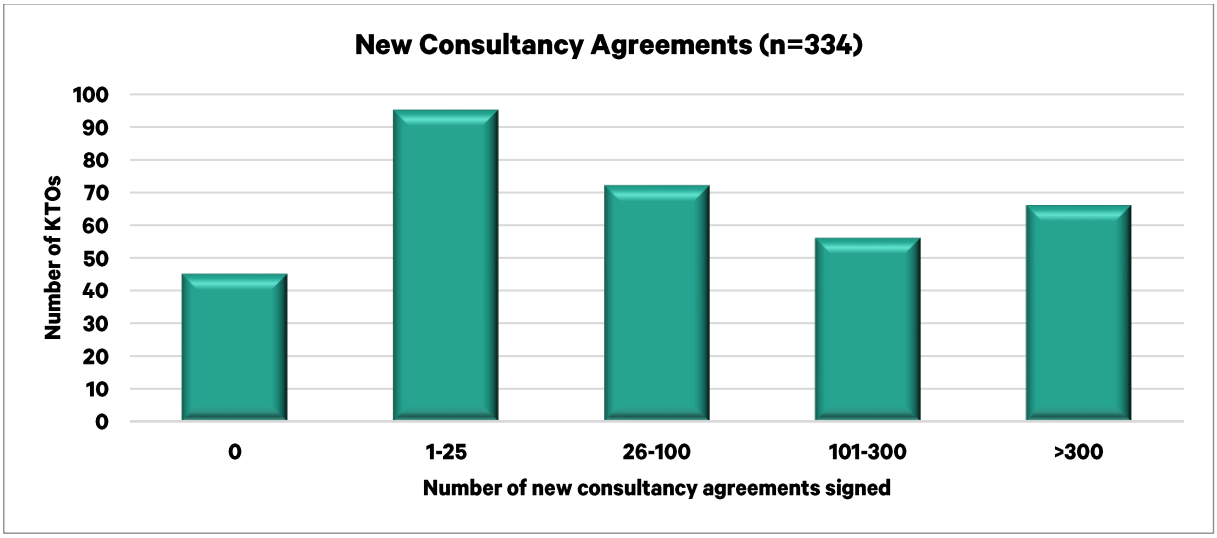

Figure 26: Distribution of the number of new consultancy agreements signed

When we look in Figure 27 (below) at the value of the consultancy agreements, we see that the largest incidence of value above zero is up to 500k€ with 40% of contracts falling here. Of considerable interest to offices actively engaged in promoting consultancy will be the figures showing total income to KTOs in excess of 10M€. While it remains a small overall percentage of offices, it is not the least frequently reported (11 offices here while only 6 report income between 6-10M€).

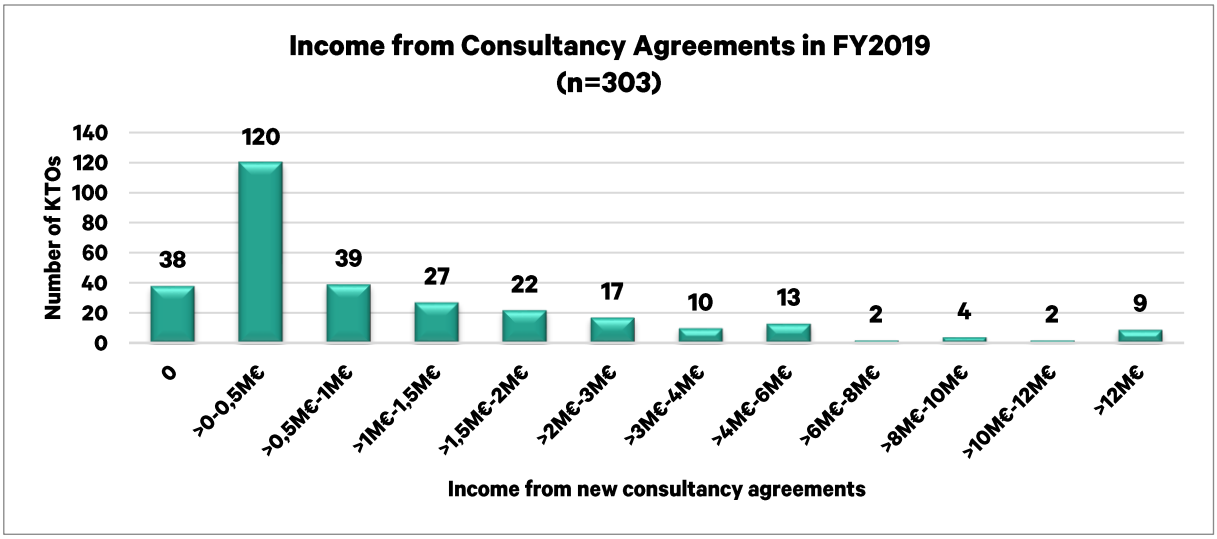

Figure 27: Distribution of the gross amount received from new consultancy agreements

3.4. Commercial Contracts

The following section aims to provide information on the commercialisation of intellectual property by European KTOs.

Commercialisation can take a number of forms, the most common being a license agreement, which gives the license holder the right to practice under another party's intellectual property rights.

In addition to this, agreements on the transfer of ownership (assignment) and option agreements are commonly used tools as well – however much less frequently.

For licenses, we have separately asked for the number of licenses for software and for research material licenses. Licences for research materials are quite common and relatively easy to conclude but do not directly lead to new products under development or on the market.

Commercial contract	Number of responding KTOs (n)	Total number of agreements signed
Licenses	199	1.338
Options	165	155
Assignments	170	312

License agreements	Number of responding KTOs (n)	Total number of agreements signed
Patent licenses	199	626
Software licenses	131	272
Material licenses	154	286
Other licenses	107	154

Table 5: Overview of licenses, options and assignments signed

From the aggregate numbers in Table 5 (above), it is abundantly clear that, among Licenses, Options and Assignments, License agreements are by far the most common modus for commercialisation of technology/IP rights developed within academic centres across Europe.

Among the licence agreements, patent licences are the most common (47%) followed by software licences (20%) and materials licences (21%).

By "other licences" (12%), we consider licences of IP from copyright, design, trademark, trade secret, plant breeder rights, and datasets.

3.4.1. License Agreements

The aggregate number of reported patent license agreements of 1,338 is distributed over the 199 reporting organisations. This total number of licenses shows a significant 54% increase from last year where only 868 were reported. As shown in Figure 28 (below), the majority of the KTOs (78%) that responded indicated less than 6 licences for this year. A large number of KTOs (33%) report that they have not concluded a patent license agreement in FY2019. It remains possible, of course, that these KTOs did conclude licenses for software or research materials as well as options or assignment agreements since these subcategories were not taken into consideration for this analysis.

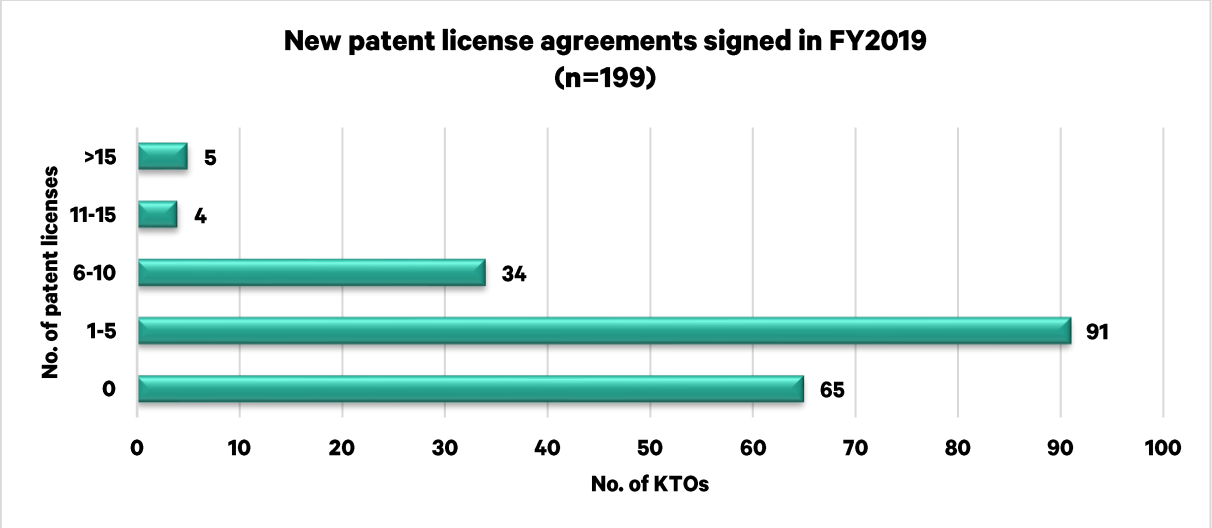

Figure 28: Distribution of the number of new patent license agreements signed

In FY2019, 286 licenses for research materials were reported. Figure 29 provides a graphical presentation of the distribution of the number of licenses per KTO across all 154 reporting organisations. It shows clearly that the majority of KTOs (65%) have not concluded any such licenses, and just 15 have concluded more than 6 in the reporting year. For these organisations, we can therefore conclude that this activity is carried out by a structure independent of the KTO or perhaps is an activity where researchers themselves have been enabled to conclude such agreements where they are receiving or supplying materials for research use.

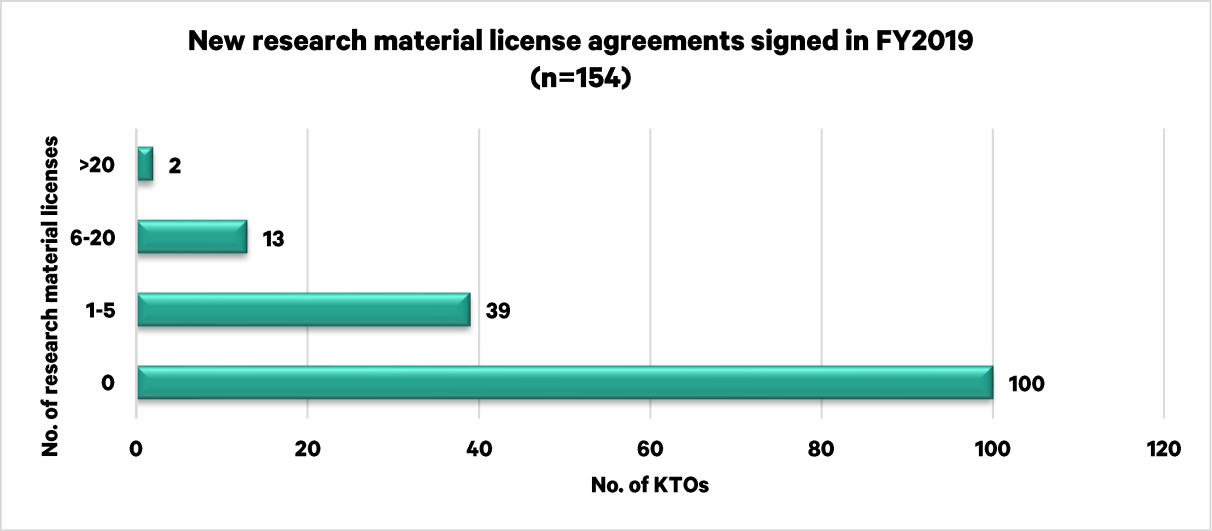

Figure 29: Distribution of the number of new material license agreements signed

In addition to patent, software and research material licenses, KTOs have also been concluding licenses for other types of knowledge, such as copyright and/or know-how.

The following Figure 30 presents the distribution of software licenses concluded per KTO across all KTOs in FY2019. Since software is often licensed on a non-exclusive basis to end-users, they can be very easy to conclude (e.g. by clicking on an "I accept" button before download and installation) and usually do not involve negotiations on standardised license terms. Popular software can in this way easily be licensed to hundreds, thousands or even more users, without requiring much additional effort from the KTO over and above that which is necessary to conclude the first license. In some institutions simple click-through software licenses may be treated in the same manner as Material Transfer Agreements, such that they are handled at departmental or researcher level, not going through the KTO at all.

The data presented in Figure 30 shows that the majority of KTOs (54%) have not concluded any software licenses in FY2019. On the other hand, a small number of KTOs (1%) declare concluding more than 20 in the reporting year. One interesting feature to note, however is also that the number of reporting KTOs has increased by 70% to 131 in 2019 from 78 in 2018.

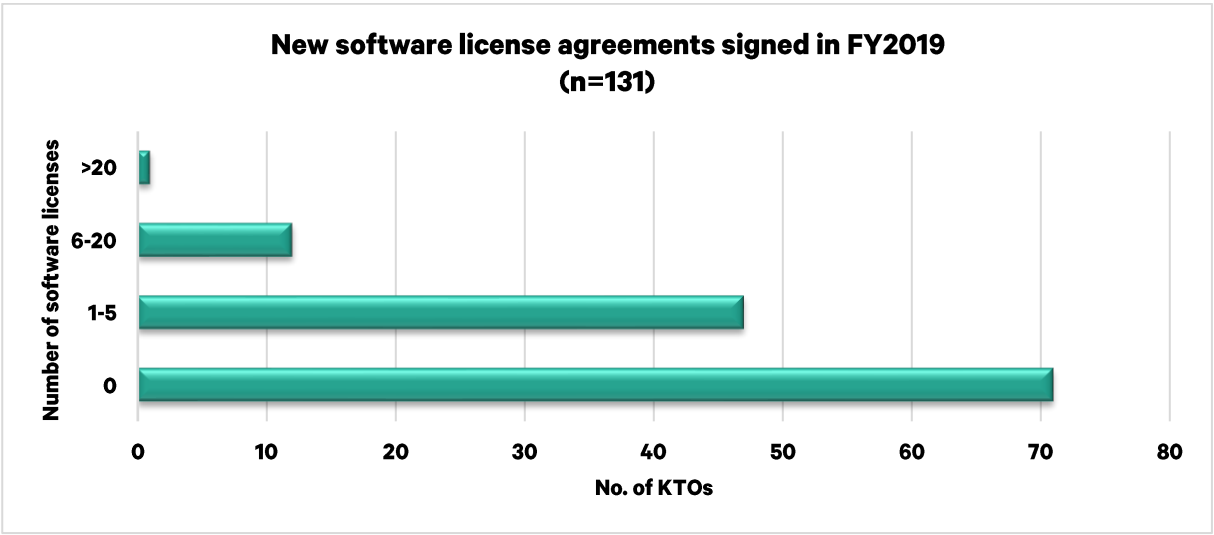

Figure 30: Distribution of the number of new software license agreements signed

3.4.2. Option Agreements

As in previous years, relatively few KTOs record concluding an option agreement, often used to provide an evaluation period to prospective licensees during which they can test-drive the technology and determine whether it is fit for the purpose they have in mind. From the data presented in Figure 31 (below), it is apparent that a large majority (120/165 or 73%) of reporting organisations have not concluded any option agreement in FY2019.

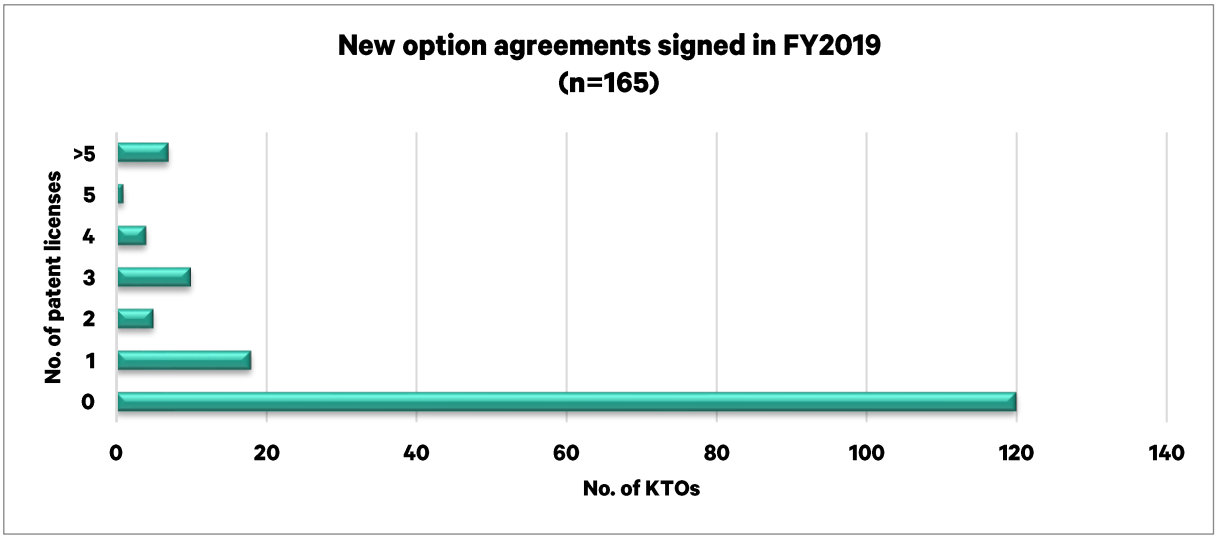

Figure 31: Distribution of the number of new option agreements signed

3.4.3. Assignment Agreements

Assignment agreements arrange for the transfer of ownership of certain property from one party to another. In the context of knowledge transfer, this usually relates to the transfer of intellectual property rights (mainly patent rights and copyright). As a result, a lot, if not all control over such rights is lost by the assigning party. Due to this, assignment is not often used as a tool in the commercialisation arsenal of a KTO. Nevertheless, we received reports that a total of 312 assignment contracts, the distribution of which per KTO (across all reporting KTOs) is given in Figure 32. In line with the data that was received for FY2018, Figure 32 (below) once again shows that a large majority of 57% (97/170) of KTOs have not concluded any assignments in FY2019.

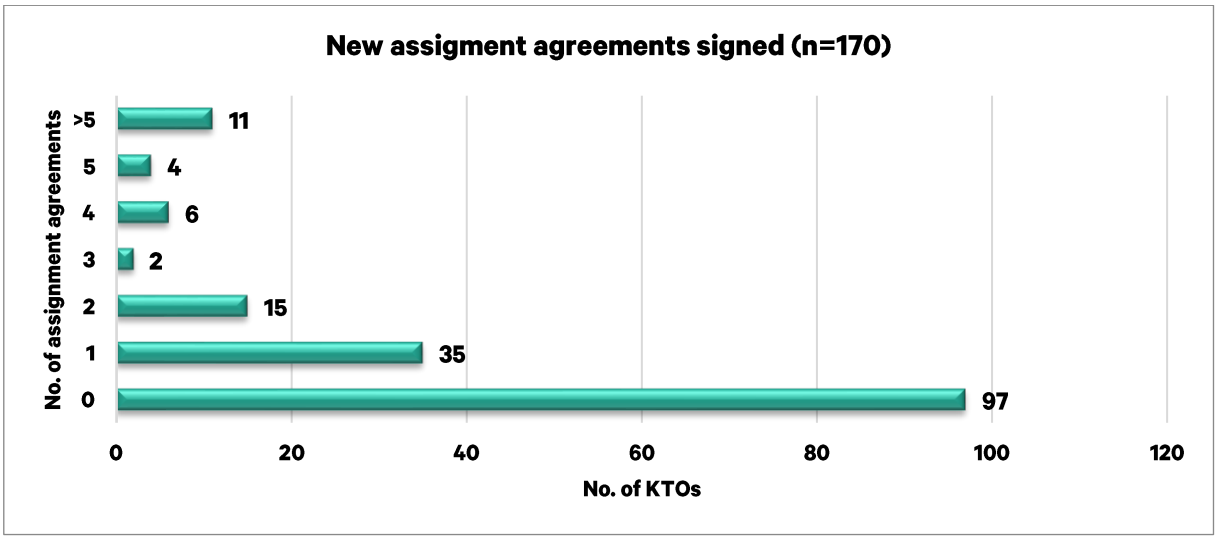

Figure 32: Distribution of the number of new assignment agreements signed

3.5. Commercial Revenues from IP

Table 6 below presents some aggregate numbers that ASTP has collected on the overall revenue from licensing IP and for a number of revenue types.

An impressive aggregate total of 563M€ in commercial revenues from IP has been reported for FY2019 by a total of 432 respondents (representing a 7% increase for the same number of respondents). This is one of the most frequent metrics, with more than 83% of KTOs (432/522) submitting an answer. One added observation is to note if we compare with data from FY2018 is a steady increase in the total sum of IP revenues: a total of 458M€ (by 404 KTOs in FY2017) to 522M€ by 431 KTOs in FY2018 to 563M€ by 432KTOs in FY2019. On average, the income in commercial revenues from IP has increased from 1.2M€ per KTO to 1.3M€ per KTO (1.1M€/KTO for FY 2017).

In Figure 32, (47%) of gross revenues consists of revenues from patent licenses. Another major revenue type comes from the sale of equity in spin-off and/or start-up companies (22%). Here, almost 76M€ is reported to have been received in FY2019 for 67% of total respondents for gross revenues (291/432).

For revenue from patent licences, far fewer respondents answered this question (186 as opposed to 432, in the table) suggests that the actual fraction of total commercial revenue that is made up of revenues from patent licenses could (and would be expected to) be much higher. In fact, only 30% (168 M€/563 M€ total) are allocated.

IP Revenues	Number of responding KTOs (n)	Total (€)
Gross revenues from IP	432	563,183,505
Including Gross revenues from patent licenses	186	91,833,424
Including Cashed-in equity	291	76,832,280

Table 6: Total gross revenues from the commercialisation of IP

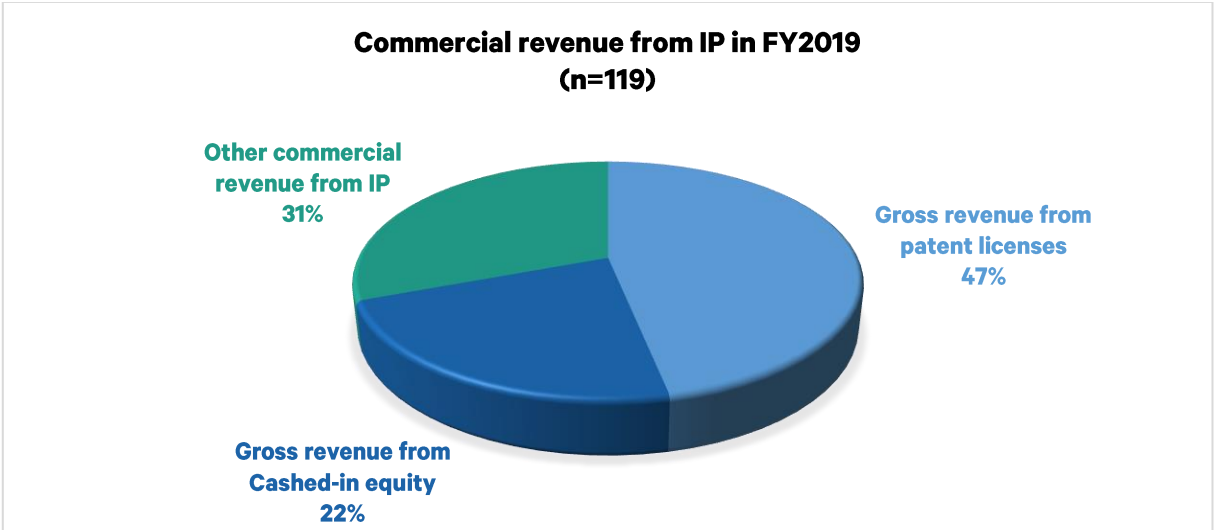

Figure 33: Percentage of gross revenues from the commercialisation of IP

If we zoom in on the distribution of gross revenues from IP across KTOs (Figure 34), 32% of KTOs (138/432) have no revenue from the commercialisation of IP and another 28% report revenues of 50k€ or less. Fifty-five KTOs (or around 13% of respondents) report income in FY2019 in excess of 1M€. It is unfortunate that insufficient information was collected on the size of the research effort of the PROs connected to these KTOs that would allow for the normalisation of these numbers and let them be expressed as e.g. 'gross revenues from IP/100M€ research expenditure'.

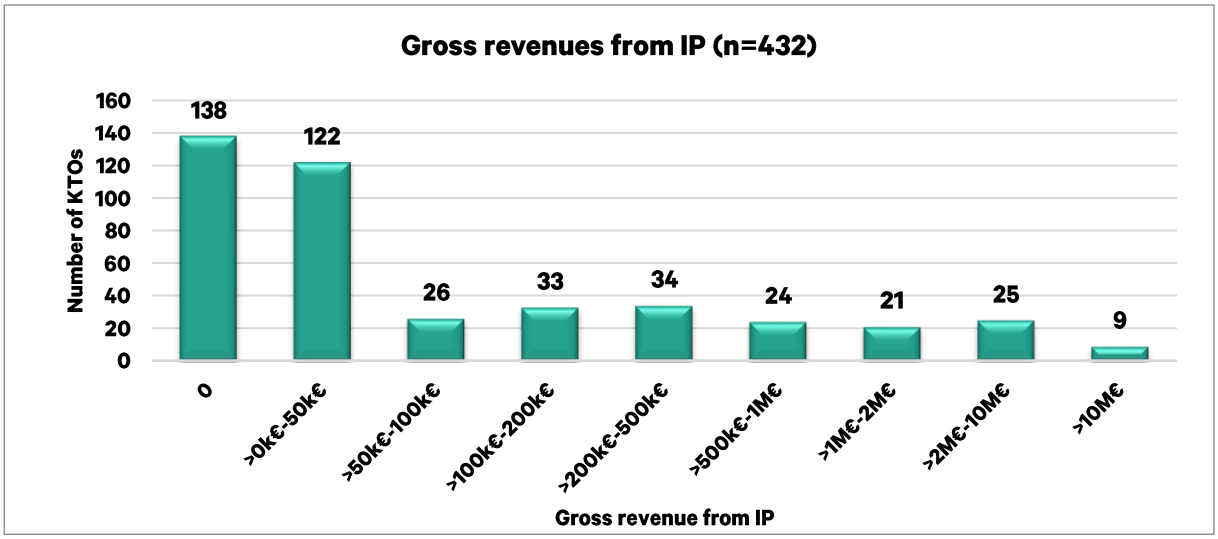

Figure 34: Distribution of gross revenues generated from IP

3.5.1. Patent Licenses

Since patents are a prominent method used by KTOs to protect IP, which provide broad protection as well as enhancing value, it could be assumed that a sizeable fraction of the total reported gross revenues from IP would consist of revenues obtained under patent licenses. Unfortunately, due to the much lower number of responses to this specific question, it remains unclear exactly what fraction of the total reported revenues consists of income from patent licenses.

While just over 34% (63/186) of respondents report no income from patent licenses, only 14 KTOs report having received more than 500k€ in income from patent licenses (as opposed to 79 KTOs that report having received more than 500k€ total gross revenues from IP in the year, see Figure 35). We suspect that the actual numbers would be much higher if all KTOs that report on the total gross revenues from IP would also report their income under patent licenses in the year.

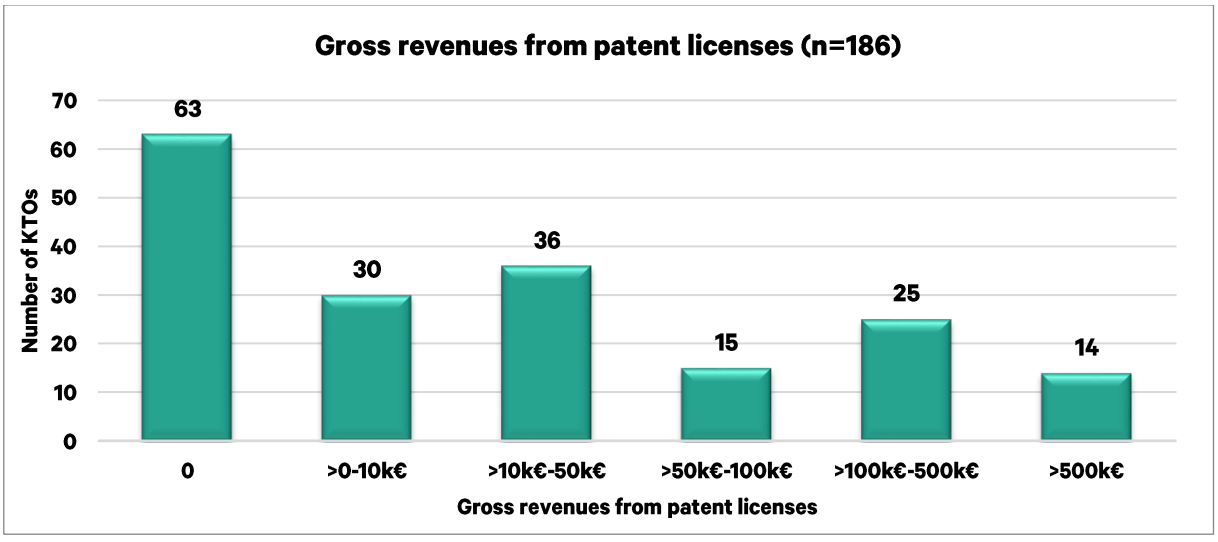

Figure 35: Distribution of gross revenues generated from patent licenses

3.5.2. Cashed-in Equity

When IP is licensed or transferred (assigned) to a third party, a common form of compensation – especially in the context of spin-off companies – is in the form of equity (shares in the company that gains access to the IP). However, many PROs do not take direct equity participations (for structural, legal or strategic reasons) and as a result do not have a chance to net income from participations.

The compensation can be monetised upon sale of these shares, either as part of a trade sale of the company (which is most common), or after a company has been floated on a stock exchange or by dividends distribution.

Out of 291 respondents, 247 KTOs reported zero cashing in equity and 44 reported cashed in equity. In the graph below, the distribution of revenues from cashed-in equity across these 44 KTOs is presented. Of those that did report income, more than half of respondents received less than 250k€, whereas the other half received more than 250k€.

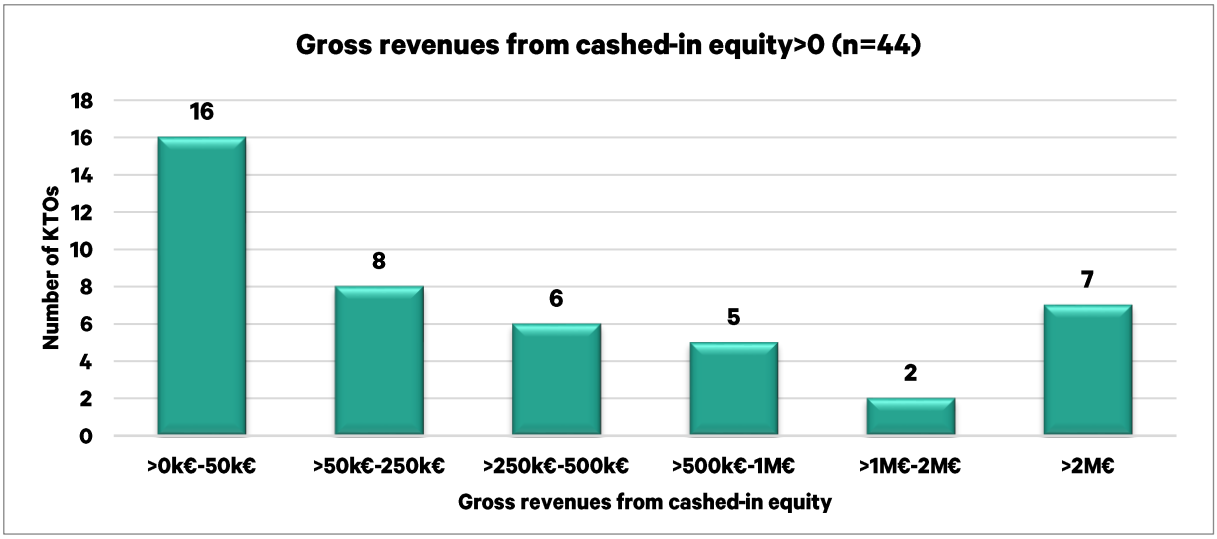

Figure 36: Distribution of gross revenues from cashed-in equity across KTOs reporting a value above 0

3.6. Spin-offs and Start-ups

New company creation is a focus for many KTOs, often supported or even driven by governmental economic development policies that aim to stimulate such activity in order to grow employment and broaden local industrial bases. In order to achieve said economic development policies, governments focus on new companies no matter from where the business ideas may arises, as long as it attracts investment and creates new jobs. For a PRO however, it is important to be able to demonstrate connectivity and impact of the research bases as well as justifying the application of resources to stimulate such activity. Hence, a distinction is important because spin-offs relate to the output of research performed by the PRO, whereas start-ups do not and thus the former are more likely to be managed and supported by KTOs

As with previous years, our survey (questions 23 and 24[4]) distinguishes between (1) companies that have a formal agreement with the KTO or PRO to use intellectual property developed at the PRO for the development of new products or services (spin-offs) and (2) companies that do not rely on such intellectual property or formal use agreements (start-ups) yet are started by students or staff of the PRO. This distinction is important because spin-offs relate to the output of research performed by the PRO, whereas start-ups do not and thus the former are more likely to be managed and supported by KTOs. However, in order to achieve said economic development policies, governments are less likely to make such distinctions given that new companies attract investment and create new jobs wherever the business ideas may arise.

The former (spin-offs), have also traditionally been an effective way in which the development and utilisation of research results is taken forward, with development funds invested into a new company. On the other hand, as understanding increases around the broader range of impacts to emerge from a PRO, resources to support start-up activity, especially around entrepreneurial students are being made available and built into impact agendas. Expertise in KTOs can be usefully harnessed in start-ups, thus expanding their remit and functions.

[4] See the definitions of spin-off and start-up in the survey questionnaire (questions 23 and 24) in Appendix 2.

Table 7 (below) shows an overview of companies created by KTOs, as well as related metrics.

	Number of responding KTOs (n)	Total number of companies created
Spin-offs created	468	681
Operating spin-offs	387	4,533
Staff in operating spin-offs (FTE)	199	37,178
Start-ups created	358	4,973

Table 7: Overview of the number of spin-offs and start-ups created

Figure 37 (below) shows that almost 50% of responding KTOs did not create a spin-off (n=232) which is 10% less than the responses in FY2018. Still, the total number of spin-offs rose from 569 in FY2018 to 681 in FY2019 by reporting KTOs. Interestingly the reporting figures for both KTOs and numbers of start-ups remains quite similar with only a modest increase in company numbers from 4,676 to 4,878 to 4,973, in FY2017 (n=336) and FY2018 (n=369) and FY2019 (n=358), respectively. But the other consistent message we see in Table 7 is that spin-off numbers are 14% of the number of start-ups (10% for FY2018).

When we look in more detail at the data around the number of KTOs reporting, while we see a stagnation (+3%) reporting, from 455 to 468, the actual number of new spin-offs created only rises by 20% (569 to 681). What can we say about the distribution? A lower percentage report zero formation with 50% compared with 58% in FY2018. The remaining distribution ratios remain the decrease with around 50% of those reporting actual formation falling between 1-5 spin-offs (70% for FY2018).

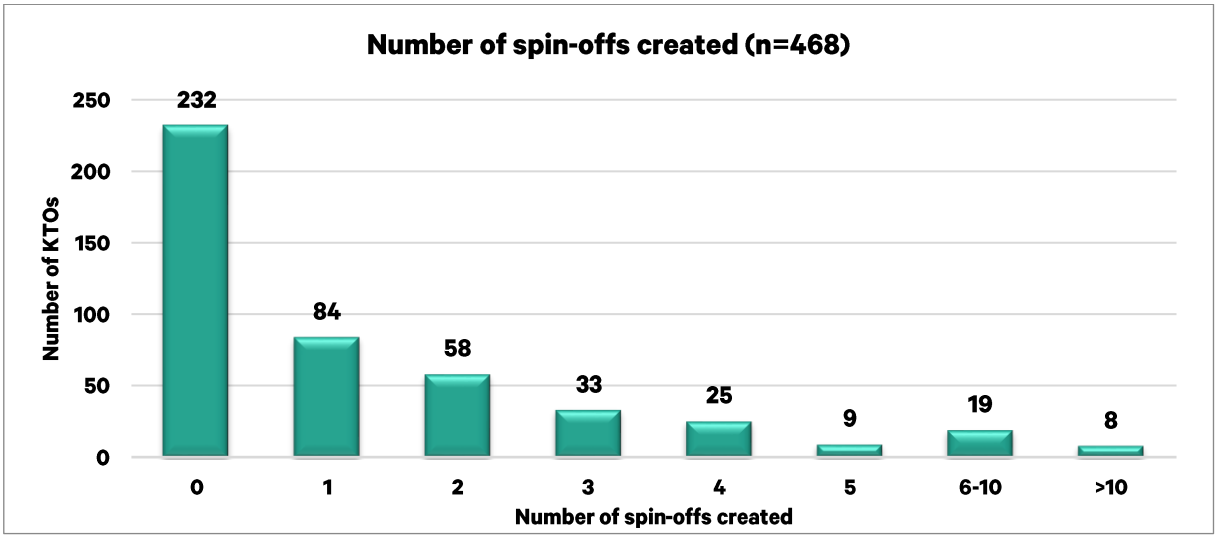

Figure 37: Distribution of the number of new spin-offs created

When we turn to start-up creation, Figure 37 shows only a slight increase in the number of reporting KTOs than in FY2018 (n=455) and the level reporting zero activity is similar (49% as opposed to 48% in FY2018 and 2017). Broken down detail show 7 KTOs reporting more than 100 start-ups (10 for FY2018), with 21 reporting between 51-100 start-ups (11 for FY2018).

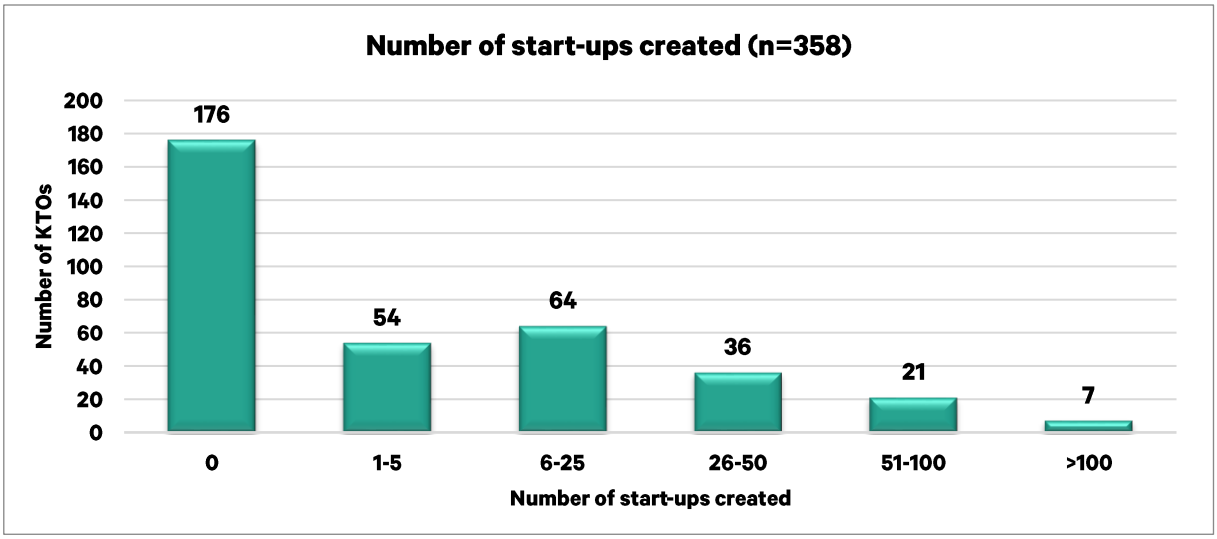

Figure 38: Distribution of the number of start-ups created

3.6.1. Existing Spin-offs

Gathering data around the legacy of earlier spin-off creation, such as how many are currently still operating, is an attempt to take a snapshot of potential impact in the local economy. There can often be challenges for KTOs to gather this data, especially for companies which may have relocated, or whose connections with the PRO have expired. In future analyses, we hope to gather insights around the reasons for success/failure of such companies.

We can see from Figure 39 that 387 KTOs were able to deliver the snapshot data on the number of operating spin-offs, although it would seem that 30% report a value of zero (116/387). It is difficult to know what rationale to put to such data. It could be that the KTOs have not been able to identify such companies or it reflects a region where there is zero history of spin-off creation. Finally, it may reflect areas with historic spin-offs which by FY2019 had ceased to exist.

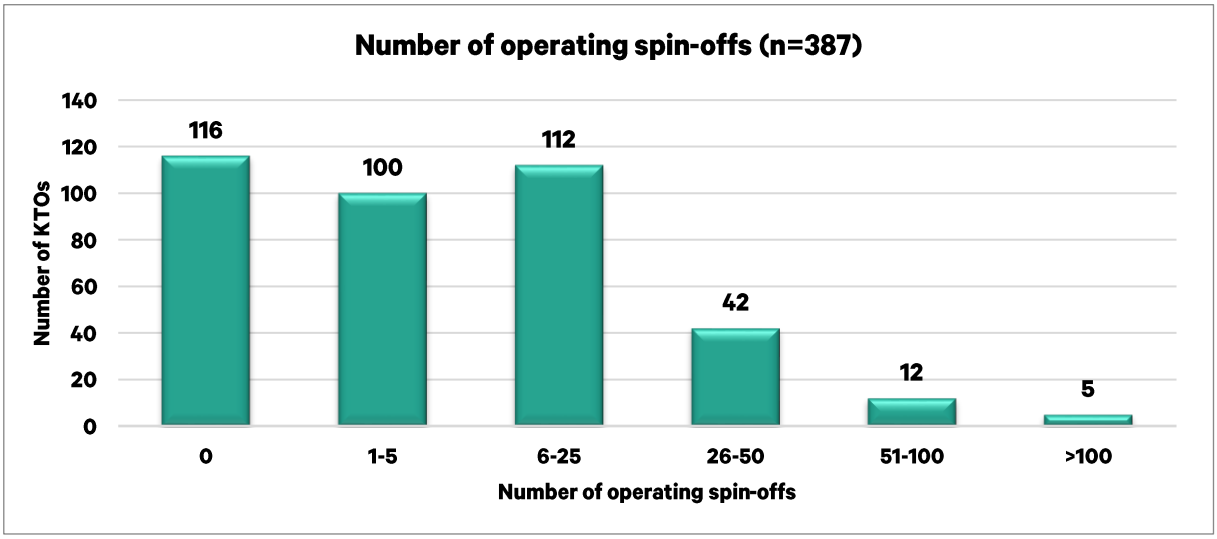

Figure 39: Distribution of the number of existing spin-offs

3.6.2. Staff in Existing Spin-offs

As with the previous snapshot data, there are inherent challenges in interpreting this data around staff numbers in existing spin-offs. As reflected in Figure 40 (below), 110 KTOs report a positive number of staff in spin-off companies. This is a slightly higher number than the previous year (105), but it is difficult to attribute this change in figures to lack of availability of data to the KTOs or whether in fact there has been a reduction in the number of functioning spin-offs with staff. The downstream relationship between KTOs and the spin-offs they may have been

initially involved in supporting changes over time, so finding a way to gather meaningful longitudinal data is challenging for any KTO.

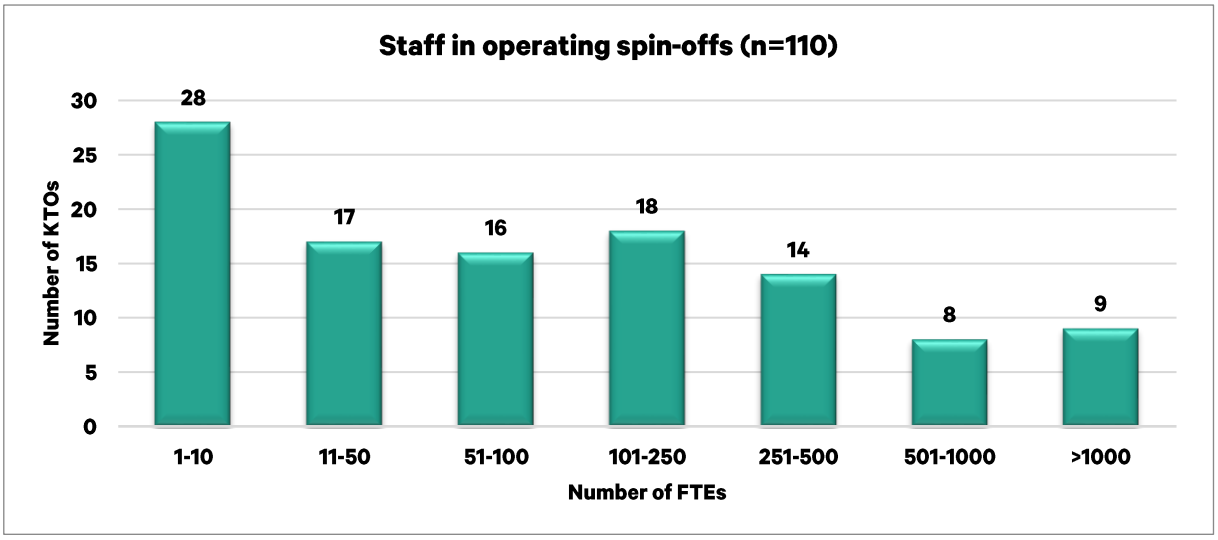

Figure 40: Distribution of the number of staff in FTEs in existing spin-offs

4. Related Reports, Tools and Initiatives

ASTP conducts ad-hoc COVID-19 Survey in 2020

In 2020-2021, a subgroup of the ASTP Survey Committee consisting of Laura Kreiling (University Paris-Saclay, France), Sandra Aresta (CIBIO, Research Center in Biodiversity and Genetic Resources, Portugal) and Jacopo Fanti (University of Bologna, Italy), set out to better understand the COVID-19 pandemic's impact on the knowledge transfer (KT) community. After the data gathering phase in 2020 (as reported in the 2020 Survey report (section 5.1. "ASTP conducts ad-hoc COVID-19 Survey"), the key emphasis of this line of work in 2021 was data analysis and reporting on key findings.

Concretely, the team from the Survey Committee conducted in-depth analysis of the primarily qualitative data and published in a first instance three short "episodes" in the summer of 2021, each focusing on a different aspect on the pandemic's impact on KT community. The final outputs are a report (direct link here) published in September 2021, as well as an exchange with the ASTP KT practitioner community at a Tea with ASTP Webinar on 23 November 2021 (watch the recording on the ASTP Youtube Channel – direct link here).

The remainder of this section focuses on (1) the main findings and (2) insights from the exchanges with survey respondents at a webinar.

4.1. Main survey findings shed light on a plethora of issues

Impact of COVID-19's pandemic on Knowledge Transfer Offices

90% of respondents indicated a change in their work at the KTO since the outbreak of the COVID-19 pandemic. In terms of impact, 71% respondents reported their KTOs were impacted by the COVID-19 pandemic. The major consequences have been delays in project implementations and contract negotiations (84% of respondents), but also new opportunities mainly related to COVID-19 (56% of respondents).

Challenges faced by KT professionals

KT professionals faced difficulties to interact with and get investment from industry. They also reported struggles to keep activities running, as well as dealing with matters related to digitalisation, networking, and working from home.

Activities carried out by KTOs

The pandemic affected the activities carried out by KTOs. The survey respondents highlighted a decrease in IP exploitation activities, with the exception of COVID-19 related technologies and projects. Networking was another important sphere of activities strongly impacted by the pandemic, with fewer exchanges/interactions both with the research and industrial partners. Nevertheless, new activities arose in the KT field, such as COVID-19-related tech transfer and new research projects targeting the virus. Working from home, due to lockdown in most countries, required new ways of dealing with the working routine, like shift of activities to online, the digitalisation of documents and work, as well as remote teamwork, leading to a digital transformation of the KT activities and practices.

Relationships

50% of respondents reported that relationships with their existing industrial partners have not been affected by the pandemic. However, while 35% reported a negative impact on their relationships with companies, 11% reported relationships with industrial partners have been improved.

Help or assistance needs

Respondents indicated the need for help from within their institutions – such as digitalisation of activities more resources and better management – as well as external help. The latter focused on training, funding and the exchange of best practices among KT professionals.

New practices adopted by KT community

79% of respondents (201/252) indicated that they and their KTOs adopted new practices. Virtual meetings and working from home were the most common new activities reported by respondents.

To enable a best practice sharing and deeper on these new KT activities and practices at KTOs, a Tea with ASTP webinar was held on 23 November 2021.

4.2. Insights from webinar exchanges with survey respondents

After contextualising the work in this ad-hoc Survey Committee team and reporting on key findings, five survey respondents detailed their different experiences since the outbreak of the Covid-19 pandemic. They agreed that, overall, their work intensity has increased since the outbreak of the pandemic. Paula Sousa Pais (CICECO's Interface Unit) said that "we were overwhelmed with requests". This was due to the fact that "researchers realised they had time to do KT" as access to labs and other facilities was limited.

In his remarks on new ways of organising work, Peter Conlon (Maynooth University) stressed the focus of his KTO at Maynooth University to help small companies during the Covid-19 pandemic. In doing so, he emphasised the importance of generating local impact and the role of the university as an open place for problem solving.

Emma Elliott shed light on HR issues and remote team working at Edinburgh Innovations. She gave hands-on examples of efforts to foster team spirit, despite remote working arrangements, which consisted of regular team meetings, 1:1 meetings with staff that did not focus on work-related aspects, as well as the establishment of a well-being committee. The latter identified ways on how to best possibly support staff, provide flexible working hours and improve the equipment endowment during the working-from-home period.

In terms of transferring activities online, Robert Goodfellow highlighted the new opportunities to link people internationally that emerged. Concretely, he discussed activities at 511 Innovation Ltd such as the transfer of licenses from universities in Scotland to the United States, or running design-thinking courses with a university in South Africa.

Tomasz Justin focused on the adoption of digital practices at Jozef Stefan Institute. The explained the challenges of digitising their expertise, highlighting the necessity to do so to diversity and become more resilient in the long-term. On the positive side, he highlighted the increase in productivity, reflected in the number of contracts signed, as well as reflected on the future of working in hybrid settings.

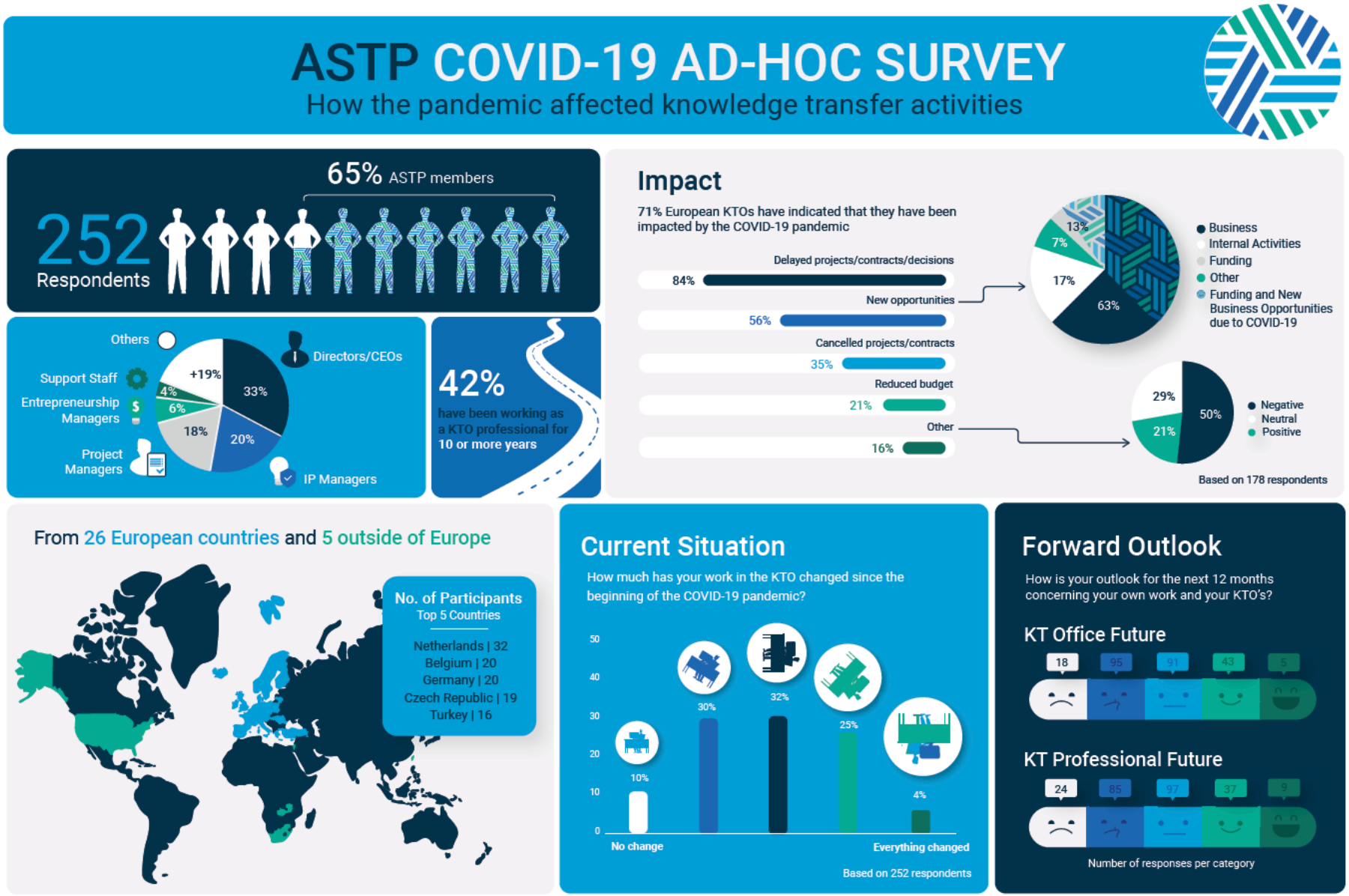

Figure 41: Infographic illustrating top level results of the ASTP COVID-19 survey

5. Acknowledgements

The ASTP Board and Survey Committee remain enthusiastically committed to the continued pursuit of collecting and presenting data on the KT landscape. Our efforts remain leading edge in that we collect and draw on cross-border data from the experts directly engaged in the process: KT professionals. A special thanks to all respondents to the ASTP survey for contributing data We look forward to working more closely with the sector to understand different trends and polies which impact on KT activities.

National Associations (NAs) and the ASTP National Associations Advisory Committee (NAAC) deliver an incredible commitment in the collection of European KTO data. Their continued collaboration in terms of either promoting our questionnaire or sharing data with ASTP is the reason that we have been seeing annual increases in the number of total datasets. We are very grateful to these most pro-active NAs driving individual completion by the KTOs in their regions: PACTT (Poland), Réseau LIEU (Belgium), Transfera (Czech Republic), ÜSIMP (Turkey), and VSNU (Netherlands).

Those NAs that are collecting data in their respective countries continue to inspire us with their dedication to the challenge of gathering KT metrics, all in the name of understanding better the endeavours of this KT landscape. Not only do they face the challenges with their own surveys, they also willingly collaborate with our Survey Committee to facilitate the transfers of data so that the European-wide KT community can be more effectively informed. For this we remain eternally grateful and look forward to further engagement with all NAs as we work together to further enhance the recognition of the achievements of the KT community. Our thanks go this year to Knowledge Transfer Ireland (Ireland), Netval (Italy), RedOTRI and CRUE (Spain), Research England (previously known as HEFCE, UK), Réseau C.U.R.I.E (France), TransferAllianz (Germany), Universities Denmark (Denmark) and Hungarian ETTF for their invaluable willingness to cooperate and share national data collected through their own national surveys.

Conducting the Annual Survey and producing this report would not have been possible without the driving energy of the volunteers in the ASTP Survey Committee. Their outstanding efforts and dedication to ASTP Survey Committee activities continues to evolve. We all look forward to the next exciting developments as we continue to gather expertise, cement partnerships to add value, develop valuable tools and continue to raise awareness about the role and impact of KT in innovation.

5.1. Survey Committee Members (2021 Report)

Christophe Haunold
Chair Survey and Metrics Committee
University of Luxembourg, Luxembourg

Sandra Aresta
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Portugal

Tamas Bene
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Belgium

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Netherlands

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Appendix 1 – List of Figures, Tables and Abbreviations

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List of Tables

List of Abbreviations

ATTP	Alliance of Technology Transfer Professionals
EC	European Commission
EU	European Union
CDA	Confidential Disclosure Agreement
EPO	European Patent Office
FTE	Full Time Equivalent
FY	Financial Year
IP	Intellectual Property

IPR	Intellectual Property Rights
ICT	Information and Communications Technology
JRC	Joint Research Centre
K€	Thousand Euros
KE	Knowledge Exchange
KT	Knowledge Transfer
KTO(s)	Knowledge Transfer Office(s)
LOA	Licensed with an Option to Assign
M€	Million Euros
MTA	Material Transfer Agreement
NAAC	National Associations Advisory Committee
NA(s)	National Association(s):
CRUE	*Conference of Rectors of Spanish Universities*
ETTF	*Technology and Knowledge Transfer Forum of Hungarian Universities*
FinnChamps	*Informal Knowledge Transfer Association in Finland*
HEFCE	*Higher Education Funding Council for England (it ceased to exist as of 1 April 2018), now known as Research England*
KTI	*Knowledge Transfer Ireland*
NATT	*Russian National Association of Technology Transfer*
Netval	*Italian Knowledge Transfer Association*
PACTT	*Porozumie Akademickich Centrów Transferów Technologii (Polish Association of Centers for Technology Transfer)*
RedOTRI	*Red de Oficinas de Transferencia de Resultados de Investigación (Spanish Knowledge Transfer Association)*
Réseau C.U.R.I.E.	*French Knowledge Transfer Association*
Réseau LIEU	*Belgian Knowledge Transfer Association*
SNITTS	*Swedish Network for Innovation and Technology Transfer Support*
swiTT	*Swiss Technology Transfer Association*
TransferAllianz	*German association for knowledge and technology transfer*
Transfera	*Knowledge Transfer Association in Czech Republic*
Universities Denmark	*Danish association for knowledge and technology transfer*
ÜSIMP	*University-Industry Collaboration Centres Platform of Turkey*
VSNU	*Vereniging van Samenwerkende Nederlandse Universiteiten (Association of Dutch Universities)*
OECD	Organisation for Economic Co-operation and Development
PCT	Patent Cooperation Treaty
PRO(s)	Public Research Organisation(s)
R&D	Research and Development
RTTP	Registered Technology Transfer Professional
STI	Science, Technology and Innovation

TT	Technology Transfer
TTO(s)	Technology Transfer Office(s)
VP	Vice President
WIPO	World Intellectual Property Organisation
WIPI	World Intellectual Property Indicators

Appendix 2 - FY2019 Survey Questionnaire

The questionnaire (below) has been fulfilled by direct respondents to ASTP Annual Survey.

Introduction - please read carefully

This survey collects data for Financial Year 2019 (FY2019)
Please provide us with data relevant for the 12-month period that is used within your Knowledge Transfer Office (KTO) or Public Research Organization (PRO) for financial reporting ("Financial Year" or "FY"). If this period does not coincide with a calendar year, then please provide us with data for the 12-month period that ENDS in the year for which data are requested.
For example, if your Financial Year starts on May 1st, Financial Year 2019 (FY2019) would then be the period from May 1, 2018 – April 30, 2019.

If your KTO is the major service provider of knowledge transfer services for more than one PRO
Please provide aggregate data for all PROs combined (and indicate the total number of PROs in Question 5).

Before starting to fill out this survey
You can download the survey questionnaire to view the questions and prepare the data in advance. Please make sure that you have collected the relevant data for all of the PROs that you report on, in particular the total amount of Research Expenditure in FY2019 and the total number of Full-Time Equivalent (FTE) engaged in research in FY2019. These numbers will be used to normalise data such that the output of organisations of different sizes can be compared more readily.

Published reports
The results of past annual surveys are available in the ASTP resources library.

Guiding notes

Save and continue later

You can use your login details to revisit the survey without losing entered data.

You may also choose to save your progress by clicking the 'save and continue' button at the top of each survey page, enter your email address and a unique link to return to the survey where you left off will be emailed to you. If you do not receive the confirmation email and you cannot find it in your spam folders, please contact survey@astp4kt.eu.

Entering values

If you don't know the answer to a question, please leave the question blank. **Only fill in zero '0' if the answer is in fact '0'**.

Entering numbers (use of comma , and period .)

Most questions only accept whole numbers as an answer. Questions that do accept entering of fractional numbers are marked accordingly.

- **If you wish to use a decimal separator, please use a period (.). Do not use a period (.) as a thousands separator.** The software treats the use of a period (.) in a number as a decimal point. *For example: entering '110.000' will result in conversion to '110'.*
- Do not use a comma (,) as a decimal separator nor as thousands separator. All commas will automatically be removed.

This survey consists of 26 questions

If you have any questions regarding this survey, please contact ASTP at survey@astp4kt.eu

Comments and Feedback on the survey

Your comments and feedback are valuable to us in order to improve future surveys. If you have any comments and feedback, please submit them in the feedback box on the last page of the survey.

Some information about yourself

1. Do you allow us to share your data with your national knowledge and technology transfer association?

- ○ YES
- ○ NO

If yes, please choose your national association:

Austria - Austrian TT Network
Belgium - Réseau LIEU
Belgium - TTO Flanders
Croatia - Croatian TT Network
Czech Republic - Transfera
Denmark - Universities Denmark
Finland - FinnChamps
France - Réseau C.U.R.I.E.
Germany - TransferAllianz
Greece - PRAXI Network
Hungary - Technology and Knowledge Transfer Forum of Hungarian Universities
Ireland - IKTIG (Irish Knowledge Transfer & Innovation Group)
Italy - NETVAL
Netherlands - VSNU (Vereniging van Samenwerkende Nederlandse Universiteiten)
Norway - FIN
Poland - PACTT (Porozumie Akademickich Centrów Transferów Technologii)
Portugal - UTEN/GAPI
Russia - NATT (Russian National Association of Technology Transfer)
Slovenia - SI-TT (Association of Technology Transfer Professionals of Slovenia)
Spain - RedOTRI
Spain - Redtransfer
Sweden - SNITTS (Swedish Network for Innovation and Technology Transfer Support)
Switzerland - swiTT (Swiss Technology Transfer Association)
Turkey - ÜSIMP (University-Industry Collaboration Centers Platform of Turkey)
Ukraine, Azerbaijan, Georgia & Maldova - TTIRA (Technology Transfer Inter-Regional As
United Kingdom - PraxisAuril
Other

If your national association is not listed above, please fill in below:

Name of National Association

Name of contact person

Email address of contact person

2. Please provide us with some information about yourself, should we need to contact you. *

First Name

Last Name

Email Address

Phone Number

Please include your country calling code

Ex: +31 (0)71 7113511

ASTP complies with all GDPR requirements and is committed to honesty and transparency, to protecting your data, and to never use it inappropriately.

Demographics and KTO age

3. Please provide some basic information on your Knowledge Transfer Office (KTO) or Public Research Organisation (PRO). *

Name of KTO or PRO of which the KTO is a part of

Street Address

City

Postcode

Country

4. In what year was your KTO first established? *

5. What is the total number of PROs your KTO serves? *

Please include the total number of PROs for which you are submitting aggregate data in this survey.

KTO staff and IP expenditure

6. What was the total number of KTO staff in Full-Time Equivalents (FTEs) at the end of FY2019?

If you wish to use a decimal point, please use a period (.) instead of a comma (,) as the use of commas in numbers is not allowed and the comma will be removed (e.g. 12,4 will become 124.

Total FTEs

*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.*

7. 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

0 out of 100% Total

8. 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.

Research Effort, Agreements with Non-Academic Parties

The data that we ask you to provide under the following two questions will be used for **normalisation purposes**. Therefore, please make sure numbers are as accurate as possible. Where possible, please use the same numbers that Public Research Organisations submit through their national statistics office for the Research and Development Official Survey (harmonised by Eurostat and OECD).

9. Please give the aggregate Research Expenditures in FY2019 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.

10. What was the (combined) research effort of your PRO(s) in FY2019, 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.

Comments

11. Please use this comment box to provide context where necessary to any of the numbers provided under Questions 9 and 10. Insert comment if there are reasons to assume that the numbers provided may not be comparable with those provided by other European institutions.

e.g. for some PROs, a lot of research work is being performed by PhD students on stipends, who do count towards the number of FTE in research but are not on the payroll of the PRO and so do not contribute to the Research Expenditures etc.

12. Please provide the number of new agreements with non-academic parties that were signed in FY2019:

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 Agreements	
Collaborative Research Agreements	
Consultancy Agreements	

13. Please provide the gross amount (€) received directly by your PRO(s) from non-academic parties under the following agreement types in FY2019:

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 Agreements	
Collaborative Research Agreements	
Consultancy Agreements	

***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 organisation 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** 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).

***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.

Invention disclosures, patent applications and patent grants

14. What is the number of invention disclosures received by your KTO in FY2019?

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.

15. Please give the total number of priority patent applications filed in FY2019.

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.

16. How many patents were first granted in FY2019?

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.

17. What is the total number of patent families in the patent portfolio of your KTO that are active at the end of FY2019?

A patent family is a collection of patent applications and granted patents that relates to a single invention.

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 FY2019.

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.

Licenses, options and assignments involving IP

19. What is the total number of LOAs (licenses, options and assignments) signed in FY2019:

Please provide us with the number by type below, if available.

20. What is the number of LOAs signed in FY2019 by type:

Total below should equal the total number submitted above. If you cannot categorize any of your transactions into the following categories, please add them to 'Others'.

Patent Licenses	
Research Material Licenses	
Software Licenses	
Options	
Assignments	
Others	

Total : 0

Commercial Revenues

21. What are the gross revenues from commercialisation of IP earned in FY2019 (€)?

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 (€)?

Total : 0

Comments

Spin-offs and start-ups

23. How many spin-offs were established in FY2019?

*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.*

24. How many start-ups were established in FY2019?

*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.***

25. How many operating spin-off companies (in aggregate) were there at the end of FY2019?

How many staff members (FTEs) were employed by your operating spin-off companies (in aggregate) at the end of FY2019?

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.

Call for Successful Impact Stories

Knowledge Transfer aims to maximise the economic and societal benefits of ideas, knowledge or inventions coming from research activities. ASTP would like to promote the variety and importance of KT impacts through the publication of case studies. Impact shall not only be on commerce, services and economy but also on health, policy, law or arts and culture. Share your successful stories (achieved in FY2018) and get them featured on ASTP best practice library and other channels.

26. Does your KTO have a successful impact story?

- ○ Yes
- ○ No

Would you like to share this impact story with ASTP?

- ○ Yes
- ○ No

Please provide a 3 line description of your proposed success story.

Who should we contact to collect this impact story?

It should not exceed one A4 page.

Name of contact person

If different from the one provided under the contact details.

Email address

If different from the one provided under the contact details.

Feedback

Please use this space to give us your opinion on any aspect of the survey, e.g. the relevance of particular questions, its length, whether you think something is missing or what you'd like to have changed, if anything.