

EPO Local Impact Study

Germany and the Netherlands, 2018-2023

EPO summary

This EPO report is based on the report **Economic Impact of the European Patent Office in Germany and The Netherlands, 2018-2023**, by Bureau Louter (Delft, 2024) and presents the report's key findings from the perspective of the EPO.

1. Executive summary

In 2023, the European Patent Organisation had an operating budget of over EUR 2 billion, of which an estimated 80% was spent on staff costs and the remaining 20% on goods and services, including those relating to office accommodation. The organisation is self-financing: its revenues consist of fees related to patent procedures as well as annual renewal fees paid by patentees for the maintenance of their European patents. Its expenditure benefits the European economy, in particular the economies of the host countries of the European Patent Office (EPO).

In early 2024, the EPO commissioned Bureau Louter, a Dutch provider of economic development reports, to quantify the economic effects of the Office's presence in the main EPO host countries: Germany and the Netherlands. The resulting EPO Local Impact Study also highlights the extent to which the EPO's presence contributes to increasing the appeal of a location vis-à-vis professional representatives before the EPO ("European patent attorneys"). A significant number of these European patent attorneys may have chosen to locate their offices in or around Munich, for example, because they value the proximity to the EPO headquarters.

The study shows that during the period from 2018 to 2023, total value added attributable to the presence of the EPO and of additional attorneys grew nominally by 31% to reach EUR 3.8 billion in Germany and by 5% to reach EUR 840 million in the Netherlands.

The study also shows that, in 2023, for every staff member directly employed by the EPO in the relevant host country, 1.7 external jobs were generated in the local economy in Germany and 1.5 in the Netherlands.

2. Introduction

This study aims to quantify the national economic effects (both direct and indirect) of the EPO's expenditure in Germany, where it has offices in Munich and Berlin, and in the Netherlands, where it has an office in Rijswijk, near The Hague.

The initiative follows on from similar studies previously commissioned by the EPO. The first study by Bureau Louter covered the economic importance of the EPO office in The Hague, mainly reporting on the year 2017 and including some comparisons with the year 2008.¹ A subsequent study by the German ifo Institute for Economic Research considered the economic significance of the EPO's Munich and Berlin offices in Germany, mainly reporting on the year 2018 and with some comparisons to the year 2009.² The current study calculates the EPO's economic impact for each year from 2018 to 2023. This enables the comparison of results throughout that period, as well as with the results of the previous studies. To this end, their methodology was largely adopted in the current study.

The study was completed in October 2024, with a written report by Bureau Louter. What follows here is a short version of the report, summarising its key findings. Chapter 3 briefly outlines the methodology, assumptions and data requirements. Chapter 4 presents the economic effects of the EPO. Chapter 5 provides a summary of the findings.

3. Outline of the methodology

The methodology of the previous studies was largely adopted for the purposes of preparing the current one, which quantifies different types of local effects for each of the two main EPO host countries.

In addition to the direct effects of the employment of staff at the EPO, **indirect effects** are generated by (i) EPO staff's local consumer spending, (ii) the EPO's local procurement of goods and services, and (iii) additional European patent attorneys. Based on these combined effects, the **total economic impact of the EPO** in Germany and in the Netherlands was calculated. The study takes into account only those local effects within each country that are clearly attributable to the presence of the EPO.

The **direct effects** of any organisation are commonly calculated on the basis of turnover, value added and employment. In the case of the EPO, "turnover" corresponds to the revenue from services provided by the EPO and mainly consists of fees related to patenting procedures, as well as annual renewal fees paid by patentees for the maintenance of their European patents. Value added is calculated as the "turnover" minus goods and services purchased (domestic and imported) and a few other items. While jobs at the EPO are clearly assigned to sites, a comparable breakdown of turnover and value added between the Netherlands and Germany had to be estimated.

¹ *The Economic Importance of the European Patent Office in 2017*, Delft: Bureau Louter (2018).

² *Wirtschaftliche Bedeutung des Europäischen Patentamts (Standorte in München und Berlin) auf die Bundesrepublik Deutschland*, Munich: ifo Institute (2019).

Further, the three types of **indirect effects** were estimated as follows:

- The largest share of the EPO's operating expenses (80%) is spent on staff. The basis for quantifying the effects of staff's **local consumer spending** is the proportion of EPO employees' net salary estimated to be available for private consumption.³ Since only local consumer spending attributable to the presence of the EPO can be taken into consideration, a distinction must be made between EPO employees with expatriate status and domestic EPO employees. Expat EPO employees live, work and consume in the EPO host country because the EPO has an office there. Hence, expat EPO employees' domestic consumer spending is clearly associated with the presence of the EPO and fully taken into consideration. Domestic EPO employees, on the other hand, would be likely to live, work and consume in that country independently of the EPO's presence. Further, assuming that domestic EPO employees would earn less with a domestic employer, only the "excess" part of their EPO net salary is taken into account. The reason for this assumption is that EPO salaries are relatively high, as the composition of staff at the EPO is characterised by an exceptionally high percentage of multilingual, highly qualified university graduates (some 75% of all EPO staff). For both expat and domestic EPO employees, it is assumed that they spend 80% of the relevant amount in their country of employment, and the remaining 20% is saved or spent abroad. The **total impact of EPO employees' estimated local consumer spending** in each of the two main EPO host countries was calculated using national input-output tables.⁴ The tables used here and throughout this study are based on national statistics sourced from the Central Bureau for Statistics for the Netherlands and the Federal Statistical Office of Germany, supplemented by information from Eurostat (for Germany).
- Roughly 20% of the EPO's total operating expenses is spent on goods, services and office accommodation. Again, to calculate the indirect effects generated as a result, the study takes into consideration only **procurement from local suppliers**. The data shows that these items include e.g. ICT (hardware, software and services), security, cleaning services, furniture, as well as construction works and the maintenance of buildings. The domestic companies from which the EPO buys also purchase goods and services from other domestic companies, and so on. This chain of effects – **impact involving all domestic companies** – was also quantified using input-output tables.
- The indirect effects of the **presence of additional European patent attorneys** are the most complex to quantify. The current study re-uses the approach developed by the ifo. By analogy with the calculation of EPO staff's local consumer spending, a distinction must first be made between two groups of European patent attorneys. Some attorneys may seek geographical proximity to their clients and establish their business independently of EPO sites. Others, however, might explicitly seek proximity to an EPO office. It is this latter group that is taken into consideration in the study, as the effects can be clearly attributed to the EPO's presence. To quantify these effects, ifo proposed first to calculate the attorney capacity required to process the total number of patent applications originating in a host country. From this, it is possible to

³ Specifically, a proportion of the salary including allowances but excluding internal tax as well as pension, healthcare and other insurance contributions.

⁴ As defined by the OECD, "input-output tables (IOTs) published by national statistical offices describe the sale and purchase relationships between producers and consumers within an economy." They are a useful tool for economic research and structural analysis as they highlight "inter-industrial relationships covering all sectors of the economy."

derive the number of 'additional' European patent attorneys located in that host country. The number of additional European patent attorneys should be understood as a *reflection of capacity* and *not in terms of the actual number of attorneys*.⁵ In purely mathematical terms, this additional capacity can be interpreted as being driven by European patent applications originating from outside of the relevant EPO host country. In the next step, the turnover of these additional attorneys was estimated. Finally, the **total impact generated by these attorneys**, including by their support staff and procurement of goods and services, was once again quantified using input-output tables.

4. Results

This chapter presents separate estimates of the EPO's economic impact in its two main host countries. As such, the EPO's economic impact is generated by (i) direct employment at the EPO, (ii) EPO staff's local consumer spending, (iii) the EPO's local procurement of goods and services, and (iv) the additional European patent attorneys that the EPO attracts to each host country.

The impact is indicated as value added for local business and as the number of jobs generated locally. Whereas the tables provide data for the period 2018-2023, the summary focuses on the results for 2023.

4.1 Direct effects of the EPO

The table below shows the direct impact of the EPO expressed in terms of "turnover" (revenue from fees), value added and number of staff directly employed at the EPO for the period 2018 to 2023.

Table 1: Direct impact of EPO – turnover, value added and number of EPO staff

	Site(s)	2018	2019	2020	2021	2022	2023
Turnover (EUR million)	DE	1 198.7	1 173.2	1 143.1	1 117.2	1 173.3	1 280.6
	NL	788.9	821.4	816.1	801.6	791.6	829.3
Value added (EUR million)	DE	807.9	779.1	746.5	732.9	756.8	819.6
	NL	531.7	545.4	533.0	525.9	510.6	530.8
EPO staff	DE	3 959	3 893	3 781	3 711	3 789	3 765
	NL	2 645	2 624	2 536	2 474	2 438	2 437

Source: EPO.

For 2023, a value added of EUR 820 million was estimated for the EPO sites in Germany and EUR 531 million for the EPO site in the Netherlands. In nominal terms, the two values correspond to about the levels of 2018.

The number of jobs at the EPO decreased 5% in Germany and 8% in the Netherlands between 2018 and 2023.

⁵ Further, the approach does not reflect the fact that European patent attorneys tend not to change their location in the face of short-term fluctuations in the volume of European patent applications originating in the EPO host country. As such, it may erroneously imply, for example, that if there is actually a sudden drop in the share of European patent applications originating in the host country, then it would seem to result in the presence in that country of a greater number of additional European patent attorneys with a greater overall impact, even if in reality this is not the case.

4.2 Indirect effects: EPO staff's local consumer spending

From 2018 to 2023, the combined total net salaries of EPO employees (including allowances but excluding internal tax, pension, healthcare and other insurance contributions) increased in each of the host countries.

Table 2: Annual salaries at the EPO

	Site	2018	2019	2020	2021	2022	2023
Total net salaries in current prices (EUR million)	DE	490.2	505.4	499	506.3	499.5	554.5
	NL	326.8	340.0	337.2	350.5	349.8	377.2
Average net salary in current prices (EUR thousand)	DE	123.8	129.8	132.0	136.4	131.8	147.3
	NL	123.6	129.6	133.0	141.7	143.5	154.8
Inflation (2018 = 1)	DE	1.000	1.014	1.017	1.050	1.141	1.210
	NL	1.000	1.027	1.038	1.067	1.191	1.242
Inflation-adjusted average net salary (EUR thousand)	DE	123.8	128.1	129.7	129.9	115.5	121.7
	NL	123.6	126.2	128.1	132.7	120.4	124.7

Source: EPO and calculations by Bureau Louter.

Average net salaries also appear to have risen, but with nominal growth roughly following inflation. Hence, the inflation-adjusted net salaries of 2023 remained roughly at the level of 2018.

As set out above, to estimate local consumer spending, a distinction was made between domestic and expat staff. The share of **expat** staff at the EPO is high, 74.7% in 2023, and considerably higher in the Netherlands than in Germany (87.1% vs 66.6%). To quantify the impact of **domestic** EPO employees' local consumer spending, only their excess net salary (above and beyond an average national net salary) is considered. In the case of both expats and domestic employees, it is assumed that 80% of the relevant portion of their salary is used for consumer spending in the country of employment.

In addition to consumer spending in the narrow sense, the economic impact of healthcare expenditure at local healthcare facilities was also quantified, taking into consideration both the amounts covered by EPO healthcare insurance and the amounts borne by EPO employees themselves (i.e. not covered by healthcare insurance).

Table 3: Estimated amounts available for local consumer spending and healthcare expenditure

	Site(s)	2018	2019	2020	2021	2022	2023
Total net salaries expats (EUR million)	DE	344.0	346.6	343.6	346.1	328.9	359.4
	NL	282.7	290.0	291.6	292.4	296.7	315.3
Total net salaries domestic staff (EUR million)	DE	146.8	158.8	155.4	160.2	170.6	195.1
	NL	44.1	50.0	45.6	58.1	53.1	61.9
Total estimated local private consumption (EUR million)	DE	310.1	316.2	292.0	300.6	304.8	334.6
	NL	237.4	244.5	221.1	231.2	250.8	267.5
Total healthcare expenditure (EUR million)	DE	39.5	40.6	38.1	38.3	40.8	45.2
	NL	6.8	7.7	7.6	8.0	7.7	8.7

Source: EPO and estimations by Bureau Louter.

The economic effects of both consumer spending and healthcare expenditure were quantified using input-output analysis. The results for each country are displayed in the table below.

Table 4: Quantified impact of EPO staff consumer spending and healthcare expenditure

	Site(s)	2018	2019	2020	2021	2022	2023
Value added (EUR million)	DE	304.8	310.0	290.3	295.9	289.4	318.0
	NL	164.7	170.8	153.9	159.1	163.5	177.7
External jobs generated	DE	5 277	5 226	5 153	4 955	4 554	4 755
	NL	2 819	2 838	2 829	2 681	2 561	2 663

Source: Quantifications by Bureau Louter.

Overall, the quantifications for 2023 indicate value added attributable to EPO staff's local consumer spending in 2023 in each state amounting to EUR 318 million for Germany and EUR 178 million for the Netherlands.

Measured in employment terms, over 4 700 jobs were generated at local companies through EPO staff's consumer spending in Germany, and almost 2 700 in the Netherlands.

4.3 Indirect effects: local procurement

Here, the EPO's procurement of goods and services from local suppliers in each EPO host country is considered. This includes goods and services relating to office accommodation. The overall expenditure, as well as EPO payments to the European School in Munich,⁶ are shown in Table below.

Table 5: Procurement of goods and services from local suppliers

	Site(s)	2018	2019	2020	2021	2022	2023
Procurement of goods and services (EUR million)	DE	79.6	80.4	82.9	115.1	131.3	131.3
European School Munich (EUR million)		25.6	23.6	25.9	26.4	25.9	25.6
Procurement of goods and services (EUR million)	NL	141.5	120.8	112.3	131.4	114.6	108.6

Source: EPO.

In Germany, the increase in local procurement of goods and services from 2018 to 2023 is partly due to various one-off effects, such as spending on IT hardware in 2021 and on buildings in 2022. There was also a continuous increase in expenditure on IT services.

In the Netherlands, the overall decrease in spending is related to the conclusion of the construction phase for the New Main building. However, expenses for repairs and maintenance were still due in 2023. Procurement was also driven by IT services, expenditure on which reached a peak in 2021.

Value added and the number of external jobs generated by EPO procurement in each country, quantified using input-output analysis, is displayed in Table .

⁶ Indirect subsidies for other international schools are included in allowances paid to staff.

Table 6: Indirect impact of local procurement

	Site(s)	2018	2019	2020	2021	2022	2023
Value added (EUR million)	DE	92.7	91.6	96.7	124.6	136.9	134.8
	NL	95.6	82.5	78.9	92.1	79.5	73.6
External jobs generated	DE	1 597	1 541	1 555	1 748	1 830	1 677
	NL	1 568	1 338	1 224	1 289	1 093	1 045

Source: Quantifications by Bureau Louter.

For 2023, value added induced by local procurement was calculated to be EUR 135 million in Germany and EUR 74 million in the Netherlands.

In the same year, local procurement was calculated to generate close to 1 700 additional external jobs in Germany and some 1 050 in the Netherlands.

In 2018, some 1 600 external jobs were generated in each host country through the EPO's procurement of goods and services from domestic companies in each EPO host state. In Germany, that figure had increased just 5% by 2023. The increase in spending can be partly explained with reference to inflation, and in any event only had a relatively small impact on external employment. In the case of the Netherlands, the decrease in expenditure and the impact on external employment are roughly of the same magnitude.

4.4 Indirect effects: additional European patent attorneys

The numbers of "additional" European patent attorneys were estimated as follows. In 2023, for example, 5 277 or 37% of all 14 231 European patent attorneys were registered in Germany. However, only 13% of the European patent applications filed with the EPO originated in Germany. An estimated 1 783 European patent attorneys would have been sufficient to handle this volume of applications. Hence, the remaining 3 494 attorneys are considered to be "additional". The numbers of additional attorneys at both sites are shown below.

Table 7: Estimated number of additional European patent attorneys

	<u>Site(s)</u>	2018	2019	2020	2021	2022	2023
Total number of European patent attorneys	-	12 434	12 764	12 734	12 703	13 892	14 231
Number of European patent attorneys registered in the EPO host country	DE	4 557	4 679	4 746	4 813	5 152	5 277
	NL	531	537	537	529	565	585
European patent attorneys registered in the EPO host country (% of total)	DE	37%	37%	37%	38%	37%	37%
	NL	4%	4%	4%	4%	4%	4%
European patent applications originating from the EPO host country (% of total European patent applications)	DE	15%	15%	14%	14%	13%	13%
	NL	4%	4%	4%	4%	4%	4%
European patent attorneys required to process EP applications originating in the host country	DE	1 900	1 882	1 812	1 742	1 773	1 783
	NL	509	488	469	443	489	502
Additional European patent attorneys in the host country	DE	2 657	2 797	2 934	3 071	3 379	3 494
	NL	22	49	68	86	76	83

Source: epi and estimations by Bureau Louter.

In both Germany and the Netherlands, the number of registered European patent attorneys increased during the reporting period, as did the number of additional European patent attorneys. In the Netherlands, the total number of European patent attorneys roughly corresponded to the capacity required to process local applications, hence the lower number of additional attorneys.

To quantify the economic effects, assumptions from the earlier ifo studies were adopted. It is assumed that European patent attorneys employ two support staff on average. This means that the 3 494 additional European patent attorneys in Germany in 2023 account for 10 482 staff in total (including the attorneys themselves). As no specific data was available for estimating turnover, the ifo assumed the (hypothetical) hourly fee charged by European patent attorneys in Germany in 2018 was EUR 400. With 8 working hours per day and 220 working days per year, this results in an annual turnover of some EUR 700 000 per attorney, from which value added tax, salaries, non-wage labour costs, offices, goods and services have to be paid. Assuming that hourly rates rose with inflation, the turnover for 2023 in current prices would be EUR 850 000 per patent attorney for Germany.

Table below presents all estimates, including for the Netherlands, using the same set of assumptions.

Table 8: Estimated annual turnover of additional European patent attorneys

	Site(s)	2018	2019	2020	2021	2022	2023
Additional European patent attorneys	DE	2 657	2 797	2 934	3 071	3 379	3 494
	NL	22	49	68	86	76	83
Total European patent attorney jobs (attorney plus 2 support staff)	DE	7 971	8 392	8 803	9 213	10 138	10 483
	NL	66	147	203	259	229	248
Price index (2018 = 1)	DE	1.000	1.014	1.017	1.050	1.141	1.210
	NL	1.000	1.027	1.038	1.067	1.191	1.242
Average turnover in current prices (EUR thousand)	DE	704	714	716	739	803	852
	NL	704	723	731	751	839	874
Total turnover (EUR million)	DE	1 870	1 996	2 102	2 271	2 715	2 978
	NL	16	35	49	65	64	72

Source: epi and estimations by Bureau Louter.

According to these best estimates, in 2023 the total turnover of all additional European patent attorneys in Germany reached almost EUR 3 billion, while the total for the Netherlands reached EUR 72 million.

The quantification of the indirect impact is again based on input-output analysis. The results are shown in the table below:

Table 9: Overall impact of additional European patent attorneys and support staff on estimated value added and the number of jobs they generate in the local economy

	Site(s)	2018	2019	2020	2021	2022	2023
Estimated value added (EUR million)	DE	1 708.4	1 813.1	1 909.8	1967.6	2 322.8	2 548.0
	NL	13.3	30.2	42.0	55.2	54.0	60.7
Total jobs generated incl. attorneys and support staff	DE	18 759	20 756	21 864	22 486	25 197	26 027
	NL	115	261	365	456	417	453

Source: Quantifications by Bureau Louter.

In Germany, the overall quantified indirect impact is very significant. In terms of value added, an increase was estimated of around 48% percent for the period, from EUR 1.72 billion in 2018 to around EUR 2.55 billion in 2023. For the Netherlands, estimates quadrupled to EUR 61 million, albeit from a comparatively low starting point.

The positive dynamics of the estimated value added are also reflected in the number of external jobs generated. In 2023, around 3 500 additional European patent attorneys were calculated to be located in the country, along with their 7 000 support staff, generating a further 15 500 jobs in the local economy. This resulted in a grand total of some 26 000 extra external jobs attributable to the EPO's presence in Germany, in addition to those linked to EPO staff's local consumer spending and EPO procurement from domestic companies.⁷

5. Summary

The current study quantified the economic impact of EPO activities on the local economies in its two main host countries of Germany and the Netherlands. The methods used were based closely on those developed previously to prepare similar studies.

The results show that the EPO generates a significant value added and number of local jobs in both host countries. The following tables summarise the findings for 2023.

Table 10: Value added impact by country for 2023

Value added (EUR million) generated by	Value added in Germany	Value added in the Netherlands
EPO (direct effect)	819.6	530.8
EPO staff's local consumer spending	318.0	177.7
EPO local procurement	134.8	73.6
Additional European patent attorneys	2 548.0	60.7

Taking into account the totality of all effects that can be attributed to the presence of the EPO, one can assume a total value added of EUR 3.8 billion for Germany, and EUR 840 million for the Netherlands. Compared to 2018, this corresponds to a nominal increase of 31% in Germany and 5% in the Netherlands.

Table 11: Employment impact by country for 2023

Employment impact generated by	No. of jobs generated in Germany	No. of jobs generated in the Netherlands
EPO staff (direct)	3 765	2 437
EPO staff's local consumer spending	4 755	2 663
EPO local procurement	1 677	1 045
Additional European patent attorneys	26 027	453

Source: EPO (for EPO staff directly employed); quantifications by Bureau Louter.

⁷ In 2018, the ifo also estimated the effects of oral proceedings in Munich, in particular the associated travel expenses for patent attorneys and applicants from abroad. Expenses were estimated at EUR 10 million, roughly corresponding to 77 jobs generated. In the meantime, online and hybrid proceedings have become technically and legally possible, largely replacing on-site meetings. Given the relatively small impact and uncertainties associated with the requisite assumptions, this impact was not re-estimated in the current study. The 2018 result was taken into consideration for 2019, and the impact for the following years was set to zero.

Considering the economic effects of EPO activities in the narrower sense, overall employment effects are estimated at just under 10 200 jobs in Germany, and over 6 140 jobs in the Netherlands.

Despite important differences between the economies of the host countries (e.g. as a smaller country, the Netherlands depend more on foreign trade than Germany does) and different procurement trends, the ratios between internal EPO jobs and the external jobs generated are comparable. Each internal job at the EPO generates 1.7 external jobs in Germany and 1.5 in the Netherlands.

In both host countries, the EPO's estimated impact for 2023 is below that for 2018. The slight decline in the number of EPO staff is noticeable here, as lower staff numbers also imply less staff consumer spending overall. In addition, the main EPO construction activities in each host country concluded during the period under review.

Furthermore, the impact of the EPO's presence was assessed in terms of the number of additional European patent attorneys registered in each host country. The study shows that in Germany, the estimated employment impact is enormous: in 2023, around 3 500 additional European patent attorneys and almost 7 000 support staff were estimated to have generated a further 15 500 external jobs in the local economy, adding up to a grand total of some 26 000 additional jobs attributable to the EPO's presence in Germany. For the Netherlands, the corresponding impact is 450 additional jobs generated in total, as over 80 additional European patent attorneys and 160 support staff were calculated to have generated more than 200 further external jobs in the local economy.