

**UNITED STATES  
PATENT AND TRADEMARK OFFICE**



# **Patents: Technology Trends and Examination Paradigms at the U.S. Patent and Trademark Office (USPTO)**

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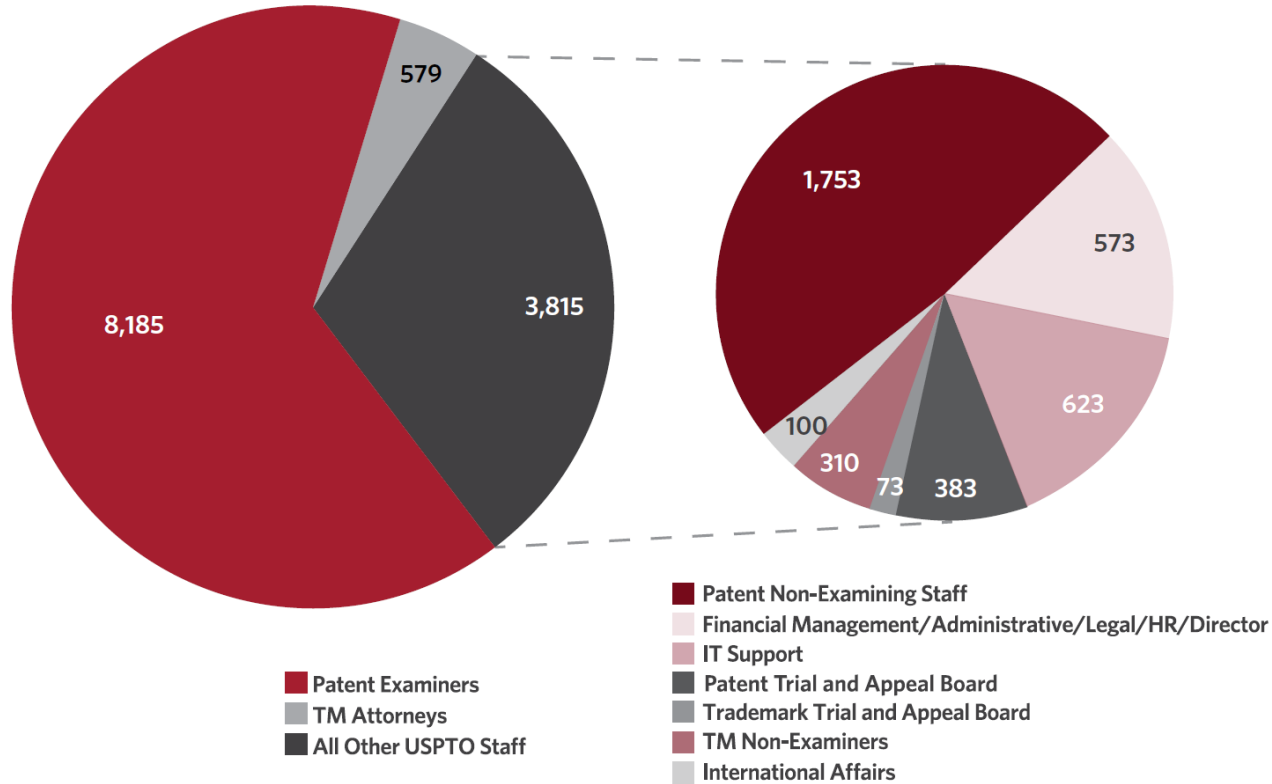
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# Overview

- **USPTO Staffing Overview**
- **Technology Trends**
  - Patent Filing Trends at the USPTO
  - Patent Trial and Appeal Board (PTAB) Trends
    - *Ex Parte* Appeals
    - Post-Grant Proceedings
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- **Examination Paradigm**
  - Patent Prosecution Highway (PPH)

# USPTO STAFFING OVERVIEW



# TECHNOLOGY TRENDS

# Patent Filing Trends at the USPTO: Filings

Patent Examining Activity	2014	2015	2016	2017	2018
Applications filed, total <sup>1,2</sup>	618,457	618,062	650,411	650,350	643,349
Utility <sup>3</sup>	579,873	578,121	607,753	604,298	595,683
Reissue	1,207	1,087	1,072	1,049	983
Plant	1,123	1,119	1,180	1,071	1,058
Design	36,254	37,735	40,406	43,932	45,625
Provisional Applications Filed <sup>2,4</sup>	169,173	170,676	167,390	166,885	168,902

**Unexamined Patent Application Inventory:** 552,349 as of June 2019 per USPTO's Patents Dashboard



# Patent Filing Trends at the USPTO:

## Top Filings by Country (2011-2015)\*

Rank	State-Territory or Country	2011	2012	2013	2014	2015	Total
1	United States	108622	121026	133593	144621	140969	648831
2	JAPAN	46139	50677	51919	53848	52409	254992
3	KOREA, SOUTH	12262	13233	14548	16469	17924	74436
4	GERMANY	11919	13835	15498	16550	16549	74351
5	TAIWAN	8781	10646	11071	11333	11690	53521
6	CANADA	5014	5775	6547	7042	6802	31180
7	FRANCE	4532	5386	6083	6691	6565	29257
8	CHINA, PEOPLE'S REPUBLIC OF	3174	4637	5928	7236	8116	29091
9	UNITED KINGDOM	4292	5211	5806	6488	6417	28214
10	ISRAEL	1981	2474	3012	3472	3628	14567
11	ITALY	1885	2120	2499	2628	2645	11777
26	BRAZIL	215	196	254	334	323	1322



\* USPTO, Patent Technology Monitoring Team (PTMT), PTMT Reports (most recent available data), *available at* <https://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm>

# Patent Filing Trends at the USPTO: Top 10 US-Origin Filings by Technology (2011-2015)\*

Rank	Class Title	2011	2012	2013	2014	2015	Total
1	<b>Drug, Bio-Affecting and Body Treating Compositions</b>	4043	5099	6048	6690	7024	<b>28904</b>
2	<b>Multiplex Communications</b>	4082	4230	4468	5297	5144	<b>23221</b>
3	<b>Multicomputer Data Transferring (Electrical Computers and Digital Processing Systems)</b>	3324	3581	3548	4636	4270	<b>19359</b>
4	<b>DP: Financial, Business Practice, Management, or Cost/Price Determination (Data Processing)</b>	3413	4100	4940	4044	1731	<b>18228</b>
5	<b>Telecommunications</b>	2689	3615	3987	4035	3898	<b>18224</b>
6	<b>DP: Database and File Management or Data Structures (Data Processing)</b>	2967	3404	3483	3921	3838	<b>17613</b>
7	<b>Active Solid-State Devices (e.g., Transistors, Solid-State Diodes)</b>	2026	1952	2383	2720	3245	<b>12326</b>
8	<b>Surgery (instruments)</b>	1788	2241	2602	2672	2899	<b>12202</b>
9	<b>Surgery</b>	1891	2218	2658	2805	2570	<b>12142</b>
10	<b>Chemistry: Molecular Biology and Microbiology</b>	2131	2128	2227	2396	2164	<b>11046</b>



\* USPTO, Patent Technology Monitoring Team (PTMT), PTMT Reports (most recent available data), *available at* <https://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm>



# Patent Filing Trends at the USPTO:

## Top 10 US-Origin Applicants (2011-2015)\*

Rank	First-Named Assignee	2011	2012	2013	2014	2015	Total
1	<b>~INDIVIDUALLY OWNED PATENT</b>	11249	12142	13313	13851	13622	<b>64177</b>
2	<b>INTERNATIONAL BUSINESS MACHINES CORPORATION</b>	4924	4964	5072	5513	5240	<b>25713</b>
3	<b>MICROSOFT CORPORATION</b>	2056	2281	2289	2464	371	<b>9461</b>
4	<b>QUALCOMM, INC.</b>	842	1183	1908	2322	2534	<b>8789</b>
5	<b>GOOGLE, INC.</b>	401	995	1592	2172	2393	<b>7553</b>
6	<b>GENERAL ELECTRIC COMPANY</b>	1177	1315	1401	1533	1425	<b>6851</b>
7	<b>APPLE, INC.</b>	655	1013	1533	1784	1731	<b>6716</b>
8	<b>INTEL CORPORATION</b>	1042	1021	1160	1210	1565	<b>5998</b>
9	<b>GM GLOBAL TECHNOLOGY OPERATIONS LLC</b>	986	1183	1334	1240	1046	<b>5789</b>
10	<b>HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P.</b>	1085	1114	1075	1233	989	<b>5496</b>



\* USPTO, Patent Technology Monitoring Team (PTMT), PTMT Reports (most recent available data), *available at* <https://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm>

# Patent Filing Trends at the USPTO: Top 10 Non-U.S.-Origin Filings by Technology (2011-2015)\*

Rank	Class Title	2011	2012	2013	2014	2015	Total
1	<b>Active Solid-State Devices (e.g., Transistors, Solid-State Diodes)</b>	4978	4913	6126	7262	8751	<b>32030</b>
2	<b>Multiplex Communications</b>	3599	4118	4772	6080	5860	<b>24429</b>
3	<b>Drug, Bio-Affecting and Body Treating Compositions</b>	3418	4081	4929	5402	5669	<b>23499</b>
4	<b>Computer Graphics Processing and Selective Visual Display Systems</b>	2332	3379	4035	4501	5165	<b>19412</b>
5	<b>Telecommunications</b>	2851	3955	4228	4223	3986	<b>19243</b>
6	<b>Semiconductor Device Manufacturing: Process</b>	3746	3255	3490	3770	3080	<b>17341</b>
7	<b>Television</b>	2074	3234	3071	3585	3998	<b>15962</b>
8	<b>Image Analysis</b>	2140	3111	3063	2786	2618	<b>13718</b>
9	<b>Pulse or Digital Communications</b>	1694	2544	2658	2672	2609	<b>12177</b>
10	<b>DP: Vehicles, Navigation, and Relative Location (Data Processing)</b>	1166	1800	2345	2646	2880	<b>10837</b>



\* USPTO, Patent Technology Monitoring Team (PTMT), PTMT Reports (most recent available data), *available at* <https://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm>

# Patent Filing Trends at the USPTO:

## Top 10 Non-U.S.-Origin Applicants (2011-2015)\*

Rank	First-Named Assignee	2011	2012	2013	2014	2015	Total
1	<b>~INDIVIDUALLY OWNED PATENT</b>	4305	5031	5339	5408	5277	<b>25360</b>
2	<b>SAMSUNG ELECTRONICS CO., LTD.</b>	4650	4767	4445	4677	4811	<b>23350</b>
3	<b>CANON KABUSHIKI KAISHA</b>	2785	3132	3763	3979	4069	<b>17728</b>
4	<b>SONY CORPORATION</b>	2054	2746	2761	2879	2224	<b>12664</b>
5	<b>TOSHIBA CORPORATION</b>	2410	2348	2316	2487	2507	<b>12068</b>
6	<b>PANASONIC CORPORATION</b>	2491	2695	2545	2054	283	<b>10068</b>
7	<b>LG ELECTRONICS INC.</b>	1373	1593	1911	2070	2175	<b>9122</b>
8	<b>INTERNATIONAL BUSINESS MACHINES CORPORATION (foreign offices)</b>	1224	1493	1716	1968	2069	<b>8470</b>
9	<b>SEIKO EPSON CORPORATION</b>	1466	1389	1450	1636	1597	<b>7538</b>
10	<b>FUJITSU LIMITED</b>	1325	1463	1686	1690	1334	<b>7498</b>

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# Patent Filing Trends at the USPTO: Top 10 Brazilian-Origin by Technology (2011-2015)\*

Rank	Class Title	2011	2012	2013	2014	2015	Total
1	<b>Drug, Bio-Affecting and Body Treating Compositions</b>	9	15	22	24	22	<b>92</b>
2	<b>Organic Compounds</b>	10	6	10	13	8	<b>47</b>
3	<b>Pumps</b>	6	7	5	11	10	<b>39</b>
4	<b>Multicellular Living Organisms and Unmodified Parts Thereof and Related Processes</b>	2	3	0	21	10	<b>36</b>
5	<b>Paper Making and Fiber Liberation</b>	14	3	6	5	1	<b>29</b>
6	<b>Aeronautics and Astronautics</b>	6	6	4	6	3	<b>25</b>
7	<b>Surgery</b>	2	3	8	5	6	<b>24</b>
8	<b>Wells (shafts or deep borings in the earth, e.g., for oil and gas)</b>	3	3	9	2	6	<b>23</b>
9	<b>Synthetic Resins or Natural Rubbers</b>	0	4	1	12	5	<b>22</b>
10	<b>Multicomputer Data Transferring (Electrical Computers and Digital Processing Systems)</b>	1	1	3	7	8	<b>20</b>



\* USPTO, Patent Technology Monitoring Team (PTMT), PTMT Reports (most recent available data), *available at* <https://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm>

# Patent Filing Trends at the USPTO:

## Top 10 Brazilian-Origin Applicants (2011-2015)\*

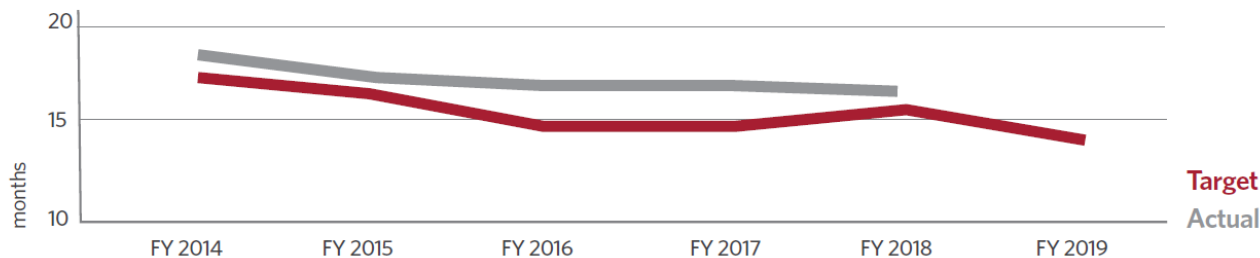
Rank	First-Named Assignee	2011	2012	2013	2014	2015	Total
1	<b>~INDIVIDUALLY OWNED PATENT</b>	35	39	37	40	37	<b>188</b>
2	<b>PETROLEO BRASILEIRO S.A. PETROBRAS</b>	18	16	14	11	11	<b>70</b>
3	<b>WHIRLPOOL S.A.</b>	13	9	10	16	19	<b>67</b>
4	<b>INTERNATIONAL BUSINESS MACHINES CORPORATION (Brazil offices)</b>	3	4	10	18	21	<b>56</b>
5	<b>EMBRAER - EMPRESA BRASILEIRA DE AERONAUTICA S.A.</b>	11	11	5	10	11	<b>48</b>
6	<b>FREESCALE SEMICONDUCTOR, INC.</b>	9	9	6	11	13	<b>48</b>
7	<b>VOITH PAPER PATENT GMBH</b>	12	4	7	1	0	<b>24</b>
8	<b>VALE S.A.</b>	0	1	3	6	13	<b>23</b>
9	<b>NATURA COSMETICOS S/A</b>	2	2	5	6	5	<b>20</b>
10	<b>PIONEER HI-BRED INTERNATIONAL, INC.</b>	1	0	0	19	0	<b>20</b>



\* USPTO, Patent Technology Monitoring Team (PTMT), PTMT Reports (most recent available data), *available at* <https://www.uspto.gov/web/offices/ac/ido/oeip/taf/reports.htm>

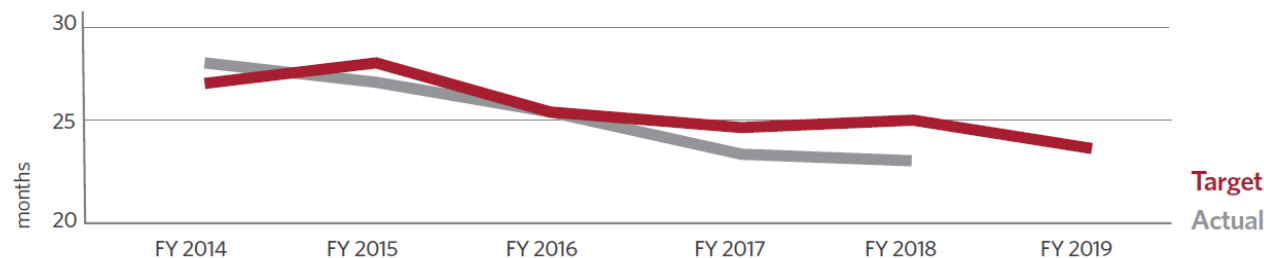
# Patent Filing Trends at the USPTO: Overall Pendency

## PATENT AVERAGE FIRST ACTION PENDENCY



*Trend: The trend line indicates that the performance trend is positive with some variability of the direction of the trend line in predicting future results.*

## PATENT AVERAGE TOTAL PENDENCY



*Trend: The trend line indicates that the performance trend is positive with little variability of the direction of the trend line in predicting future results.*



# Patent Filing Trends at the USPTO: Pendency by Technology Center

TABLE 4: Patent Pendency Statistics (FY 2018)

UPR Pendency Statistics by Technology Center (in months)	Average First Action Pendency	Total Average Pendency
Total UPR Pendency	15.8	23.8
Tech Center 1600—Biotechnology and Organic Chemistry	12.5	22.9
Tech Center 1700—Chemical and Materials Engineering	18.0	27.3
Tech Center 2100—Computer Architecture, Software, and Information Security	19.4	28.4
Tech Center 2400—Networks, Multiplexing, Cable, and Security	15.9	25.3
Tech Center 2600—Communications	11.0	19.9
Tech Center 2800—Semiconductor, Electrical, Optical Systems, and Components	12.7	21.6
Tech Center 3600—Transportation, Construction, Agriculture, and Electronic Commerce	18.2	25.8
Tech Center 3700—Mechanical Engineering, Manufacturing, and Products	19.0	28.4



\* FY 2018 USPTO Performance and Accountability Annual Report

# Patent Filing Trends at the USPTO: First Actions; Allowances & Abandonments; and Issuances

Patent Examining Activity	2014	2015	2016	2017	2018
<b>First actions</b>					
Design	28,341	33,549	36,550	40,415	41,587
Utility, Plant, and Reissue	578,352	632,337	609,612	611,280	597,509
PCT/Chapter	19,787	22,193	20,485	20,353	20,932
<b>Patent application disposals, total</b>	<b>637,263</b>	<b>641,665</b>	<b>681,363</b>	<b>676,002</b>	<b>652,319</b>

Patent Examining Activity	2014	2015	2016	2017	2018
<b>Allowed Patent Applications, total</b>	<b>346,909</b>	<b>353,700</b>	<b>363,022</b>	<b>373,093</b>	<b>368,877</b>
Design	24,695	28,663	30,741	32,705	34,078
Utility, Plant, and Reissue	322,214	325,037	332,281	340,388	334,799
<b>Abandoned, total</b>	<b>290,354</b>	<b>287,965</b>	<b>318,341</b>	<b>302,452</b>	<b>282,374</b>
Design	2,828	3,725	4,715	5,894	6,197
Utility, Plant, and Reissue	287,526	284,240	313,626	296,558	276,177

Patent Examining Activity	2014	2015	2016	2017	2018
<b>Applications Published<sup>5</sup></b>	<b>382,056</b>	<b>362,536</b>	<b>397,190</b>	<b>373,153</b>	<b>371,502</b>
<b>Patents issued<sup>2,6</sup></b>	<b>329,612</b>	<b>322,448</b>	<b>334,107</b>	<b>347,243</b>	<b>338,072</b>
Utility	303,930	295,459	304,568	315,366	306,909
Reissue	661	531	459	360	471
Plant	1,013	1,020	1,250	1,247	1,251
Design	24,008	25,438	27,830	30,270	29,441

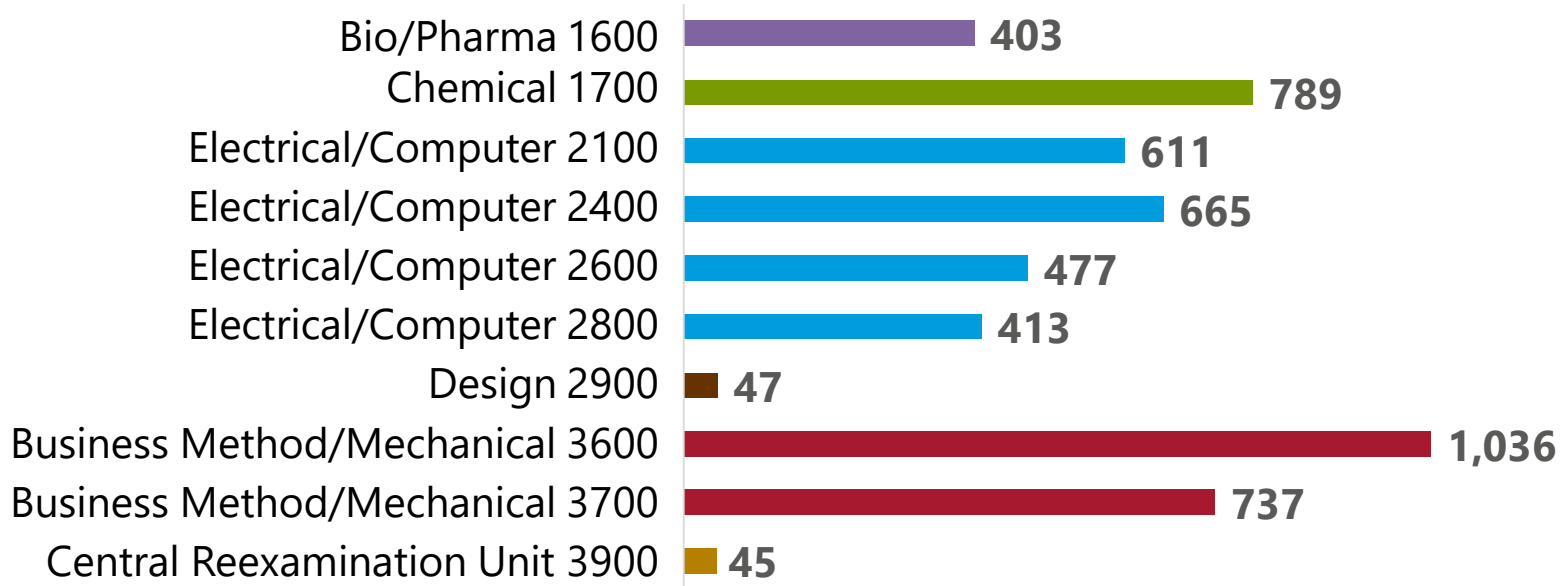


\* FY 2018 USPTO Performance and Accountability Annual Report



# PTAB TRENDS: Ex Parte Appeal Intake in FY19 by Technology Area

(Oct. 1, 2018 – June 30, 2019)

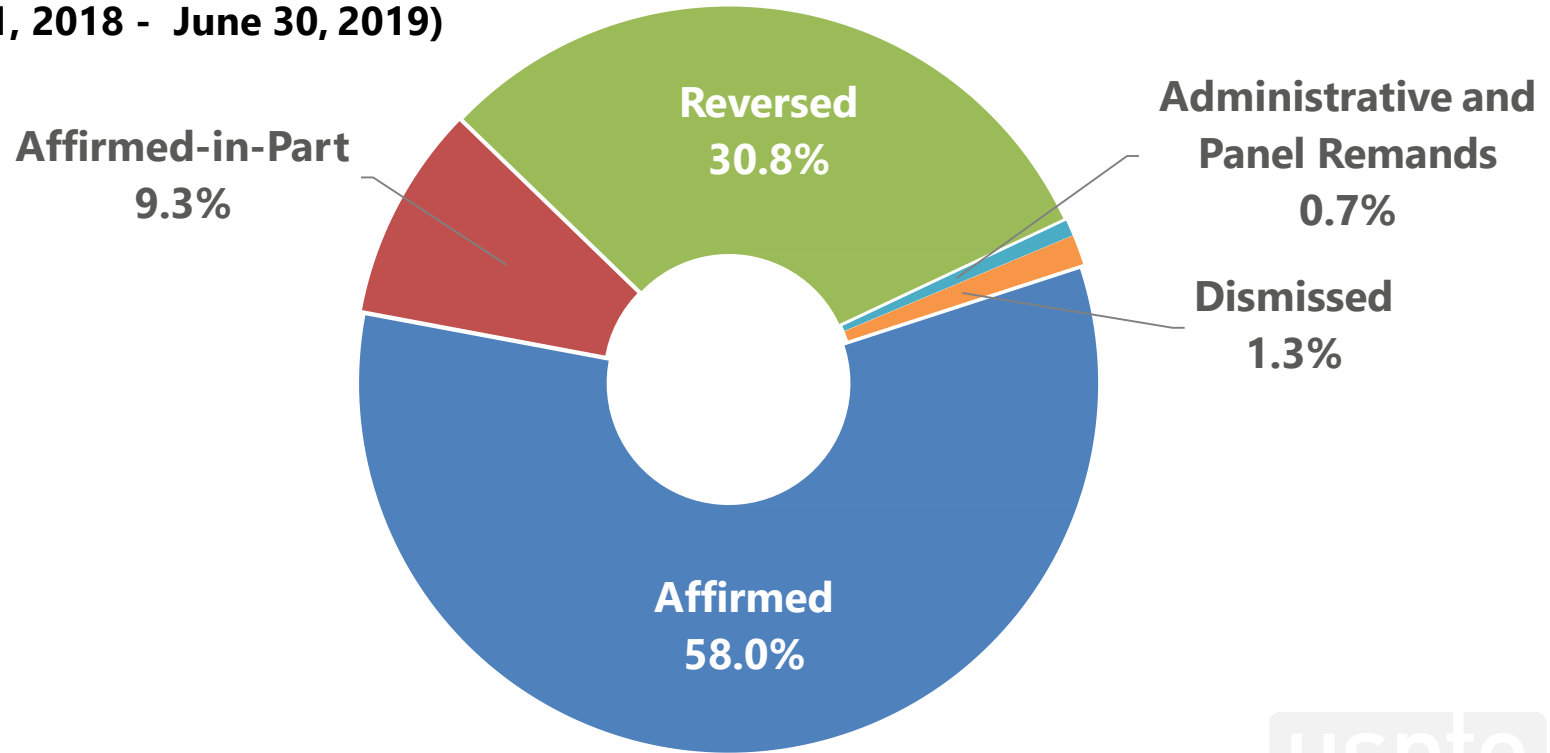


\*The Central Reexamination Unit includes ex parte reexams, inter partes reexams, supplemental examination reviews and reissues from all technologies.



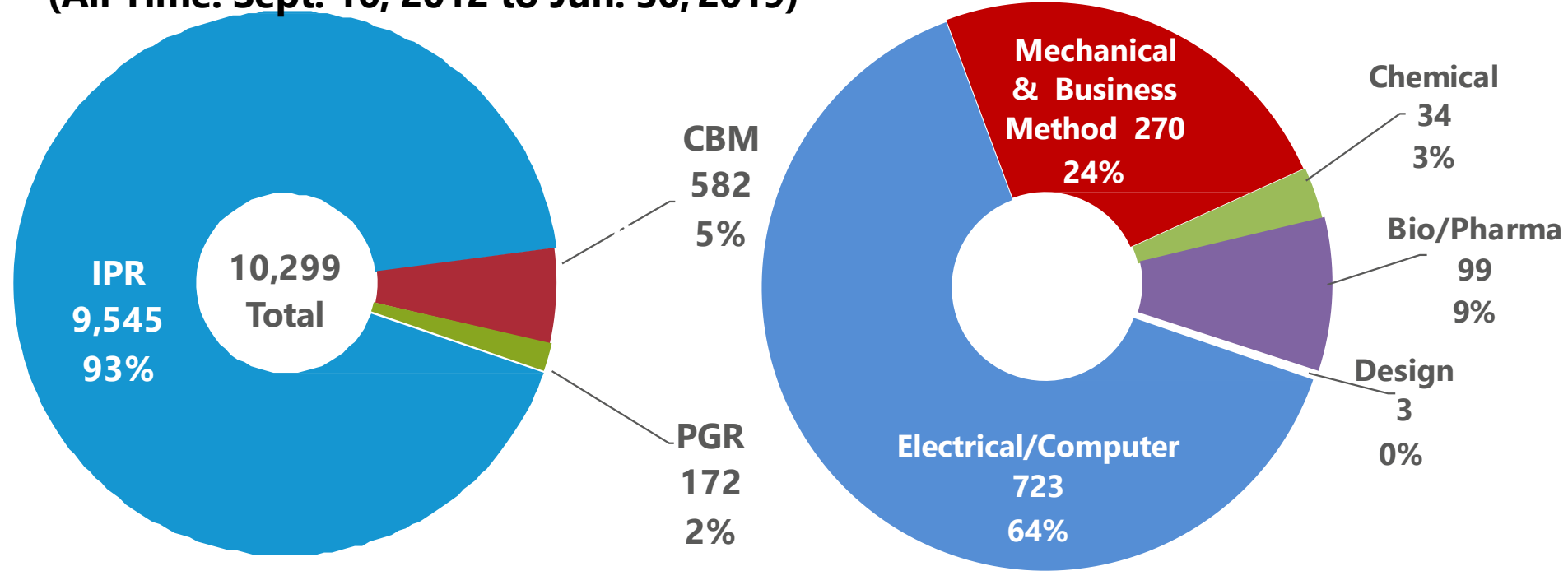
# PTAB TRENDS: Ex Parte Appeal Outcomes in FY19

(Oct. 1, 2018 - June 30, 2019)



# PTAB TRENDS: Post Grant Petitions by Trial Type & by Technology Area

(All Time: Sept. 16, 2012 to Jun. 30, 2019)

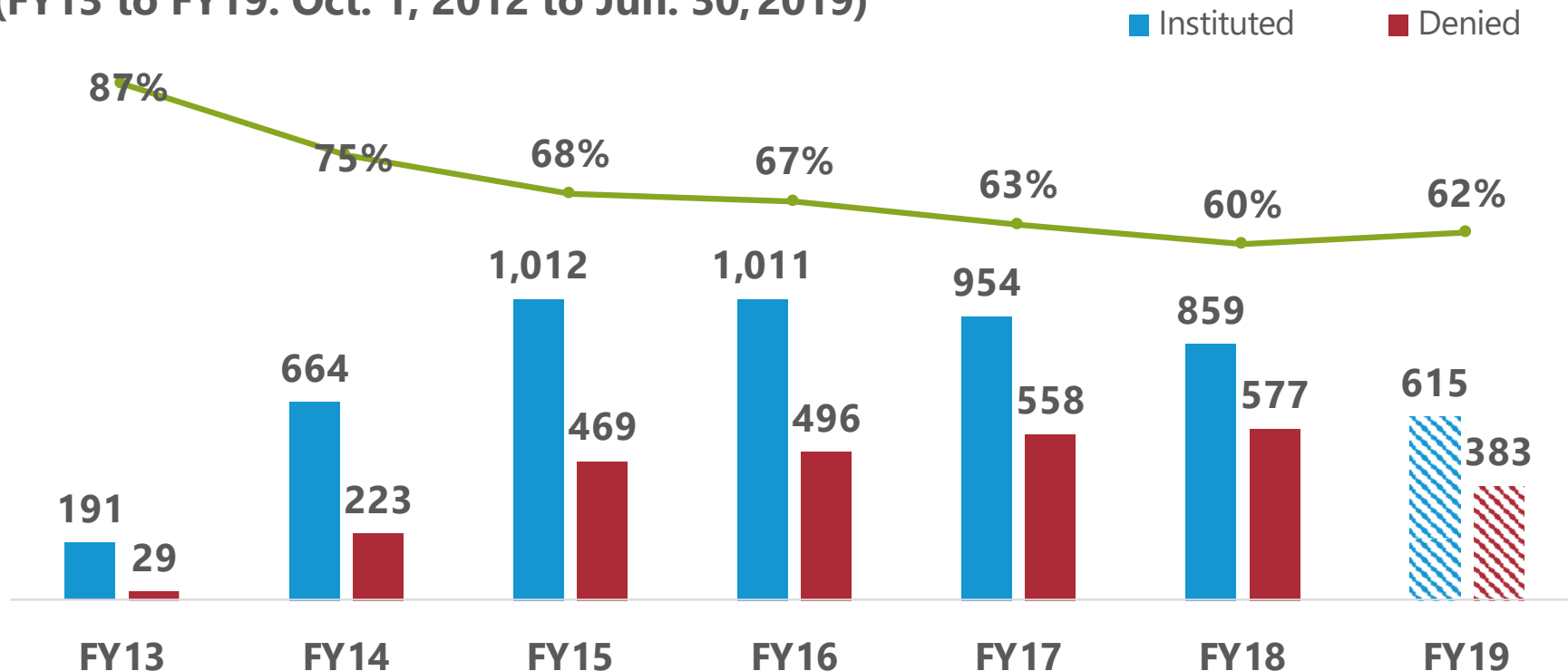


Trial types include Inter Partes Review (IPR), Post Grant Review (PGR), and Covered Business Method (CBM).



# PTAB TRENDS: Post Grant Institution Rates

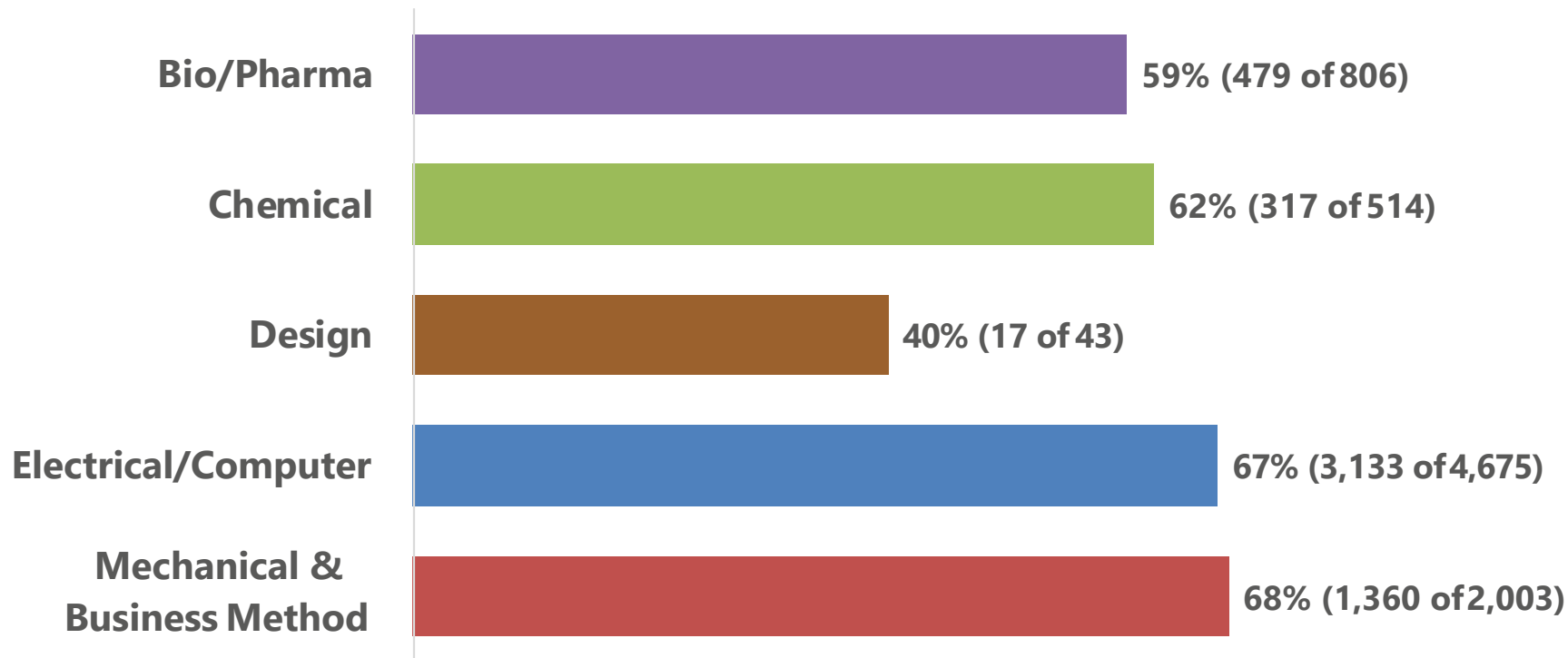
(FY13 to FY19: Oct. 1, 2012 to Jun. 30, 2019)



Institution rate for each fiscal year is calculated by dividing petitions instituted by decisions on institution (i.e., petitions instituted plus petitions denied). The outcomes of decisions on institution responsive to requests for rehearing are excluded.

# PTAB TRENDS: Post Grant Institution Rates by Technology

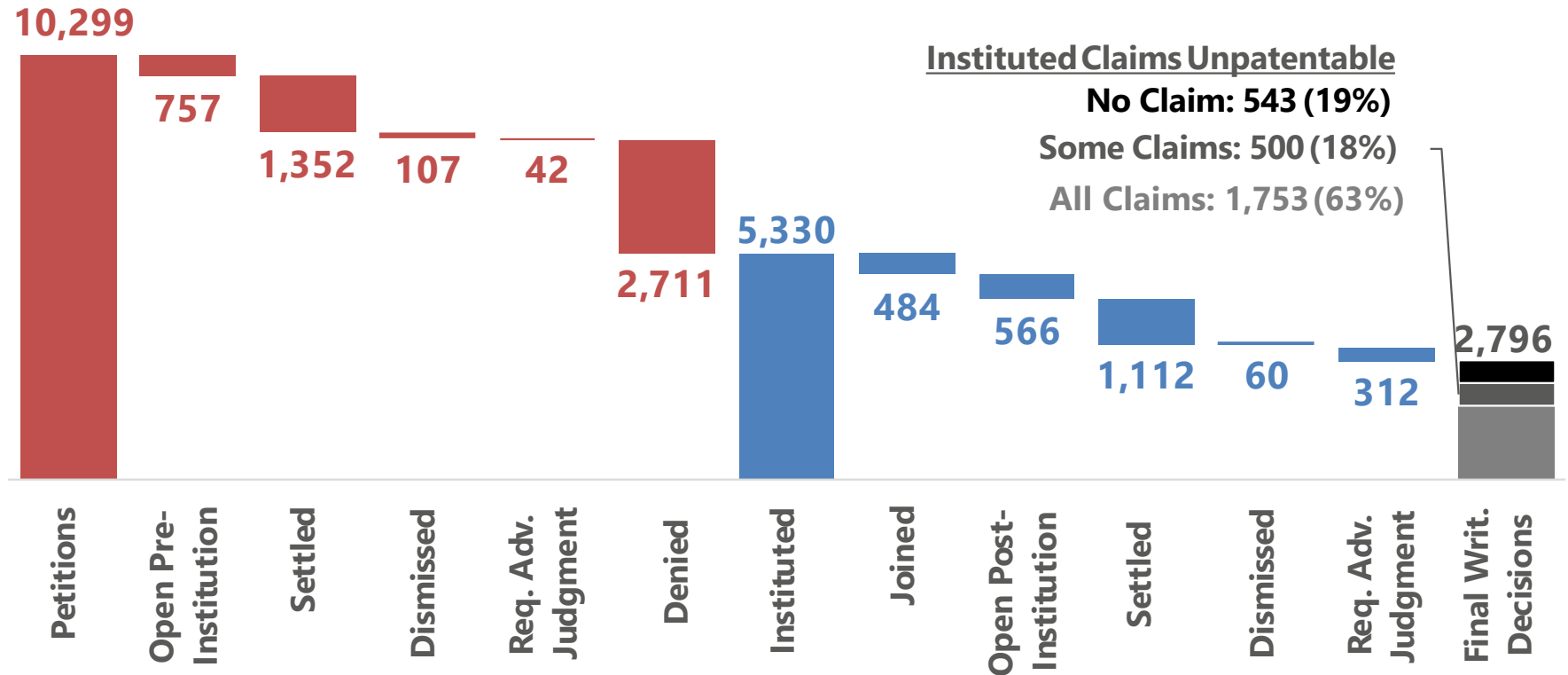
(All Time: Sept. 16, 2012 to Jun. 30, 2019)



Institution rate for each technology is calculated by dividing petitions instituted by decisions on institution (i.e., petitions instituted plus petitions denied). The outcomes of decisions on institution responsive to requests for rehearing are excluded.

# PTAB TRENDS: Status of Post Grant Petitions

(All Time: Sept. 16, 2012 to Jun. 30, 2019)



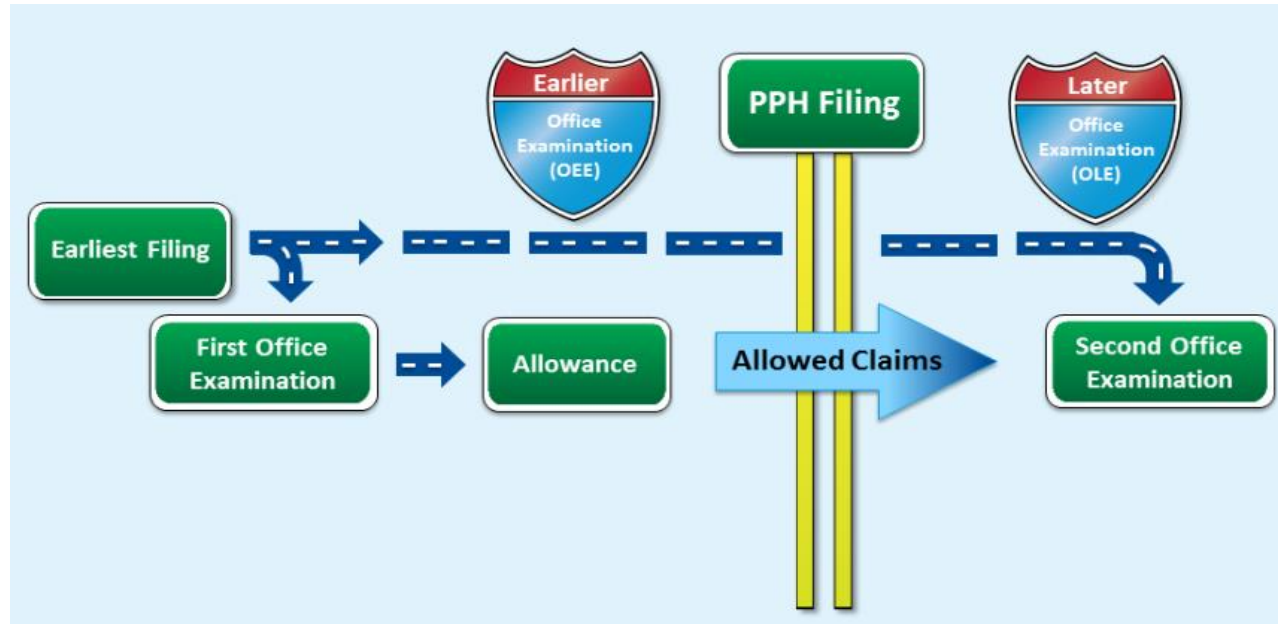
These figures reflect the latest status of each petition. The outcomes of decisions on institution responsive to requests for rehearing are incorporated. Once joined to a base case, a petition remains in the Joined category regardless of subsequent outcomes.

# USPTO on AI



- **USPTO Task Force**
  - Organized “Artificial Intelligence: Intellectual Property Policy Considerations” Conference
  - Recording Available at: <https://www.uspto.gov/about-us/events/artificial-intelligence-intellectual-property-policy-considerations>
- **IP5 Discussions**
- **WIPO Standing Committee on the Law of Patents**

# EXAMINATION PARADIGM: PPH





# What is PPH?

- A system of work sharing that improves examination efficiency by **reducing duplication of effort** among patent offices.
- Enables an applicant who has received a determination of allowable claims in an application from one office (National Stage or PCT) to obtain **fast track processing** of corresponding claims in application(s) pending in other offices.

# How Does PPH Work?

1. **Applicant receives a positive examination result from a PPH participating office**
  - A national/regional office action indicating allowable claims
  - A Patent Cooperation Treaty (PCT) Written Opinion or PCT International Preliminary Report on Patentability with favorable findings
2. **Applicant files a PPH request in a corresponding application in another PPH participating office**
3. **When the other participating office grants the PPH request, it will expedite examination of the application**

# Benefits of PPH

Full-range of benefits	Office	Applicant
Higher grant rates	✓	
Reduced overall pendency	✓	
Higher initial allowance rate	✓	
Reduced workload and duplicated effort	✓	
Cost savings	✓	✓
Rapid prosecution	✓	✓
Improved search/examination quality	✓	✓
Single set of principles (for Global/IP5 PPH only)		✓
Filing in multiple offices		✓
Rapid portfolio building		✓
Fast-tracked and streamlined examination		✓
Reduced time to receive office action and patents		✓

# Global and IP5 PPH Participants with the USPTO



# Other PPH Participants with the USPTO

- Extended until April 30, 2020.
- Oil, gas, petrochemical, and IT applications may use PPH at INPI-BR.
- USPTO accepts PPH requests for all technologies.



PPH between USPTO and Argentina (Bilateral agreement under global principles)



PPH between USPTO and Brazil (Bilateral agreement with the incoming application to the USPTO following global principles)



PPH between USPTO and Chile (Bilateral agreement under global principles)



PPH between USPTO and Czech Republic



PPH between USPTO and Eurasian Patent Office (TBD)



PPH between USPTO and Mexico (Bilateral agreement under global principles)



PPH between USPTO and Nicaragua



PPH between USPTO and Philippines



PPH between USPTO and Romania (Bilateral agreement under global principles)



PPH between USPTO and Taiwan Intellectual Property Office

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# THANK YOU

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