

EPO SEARCH TOOLS TO IMPROVE BUSINESS DECISIONS

JOHANNES SCHAAF, GEERT BOEDT | CHIEF ECONOMIST UNIT – PATENT ANALYTICS | MARCH 2025

Content

- Introduction
- Use Espacenet to filter and analyse your search results
- PATSTAT for more advanced statistics
- Patent and technology insight reports and platforms

SEVEN GOOD REASONS TO USE PATENT INFORMATION

1. Avoid duplication of R&D expenditure
2. Find out what technology already exists and build on it

→ Technical information



3. Check where an invention is protected (and where it is not)
4. Avoid infringing other people's patent rights

→ Legal information



5. Keep track of what others are doing
6. Identify new partners, e.g. for licensing
7. Spot trends in technology or the market

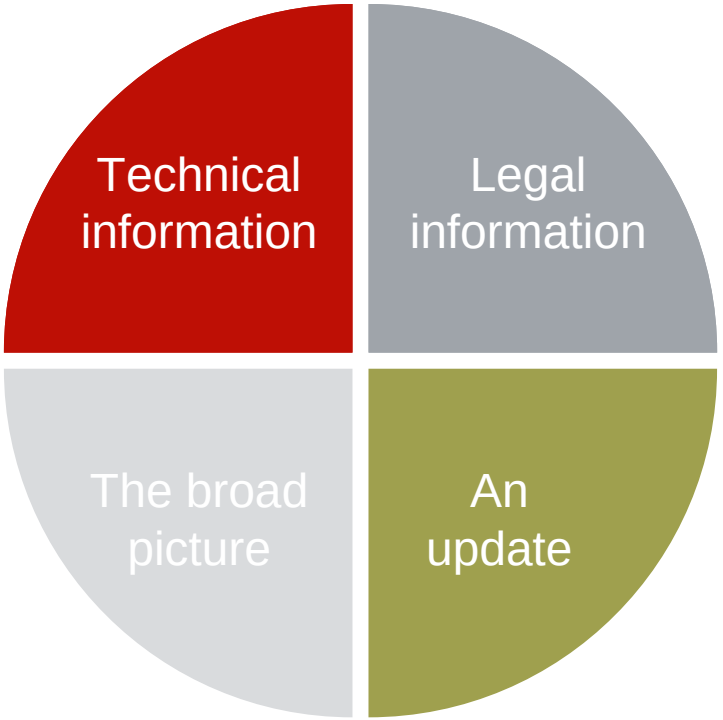
→ Business information



FROM PATENT DATA TO PATENT KNOWLEDGE

Examples:

- What are emerging technological trends?
- How do the patent portfolios of my competition look like?
- What are the newest developments protected by my competitors?
- Which patents were opposed?
- Which patents are in force?



Searching ←→ Analytics

Search Report

- Prior-art search
- Novelty search
- Freedom to operate search
- Invalidation search
- Bio sequence search
- Chemical structure searches

Limited list of patents

Analysis Report

- Technology trend analysis
- Activity monitoring
- Merger & acquisition
- Portfolio valuation
- (Cross) licencing
- Competitor watch
- Territorial mapping

Unlimited sample of patents

PATENT CLASSIFICATION SYSTEMS

International Patent Classification (IPC)

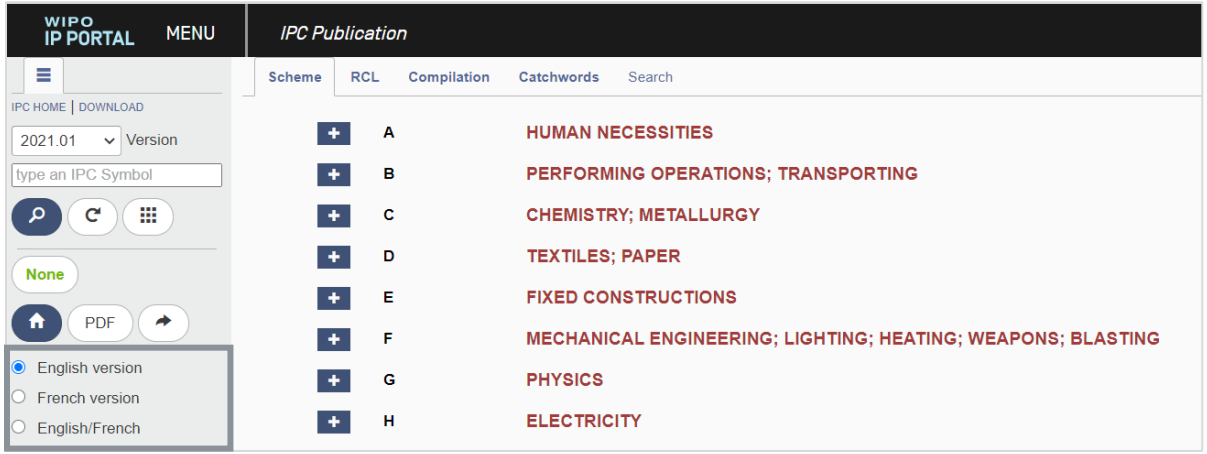
- 70 000 entries
- maintained by WIPO
- used globally

Cooperative Patent Classification (CPC)

- 250 000 entries
- maintained by USPTO and EPO
- used by USPTO, EPO, SIPO, KIPO, JPO, …

IPC CLASSIFICATION SEARCH

SECTIONS A-F COVERING ALL FIELDS OF TECHNOLOGY



https://www.wipo.int/classifications/ipc/en/

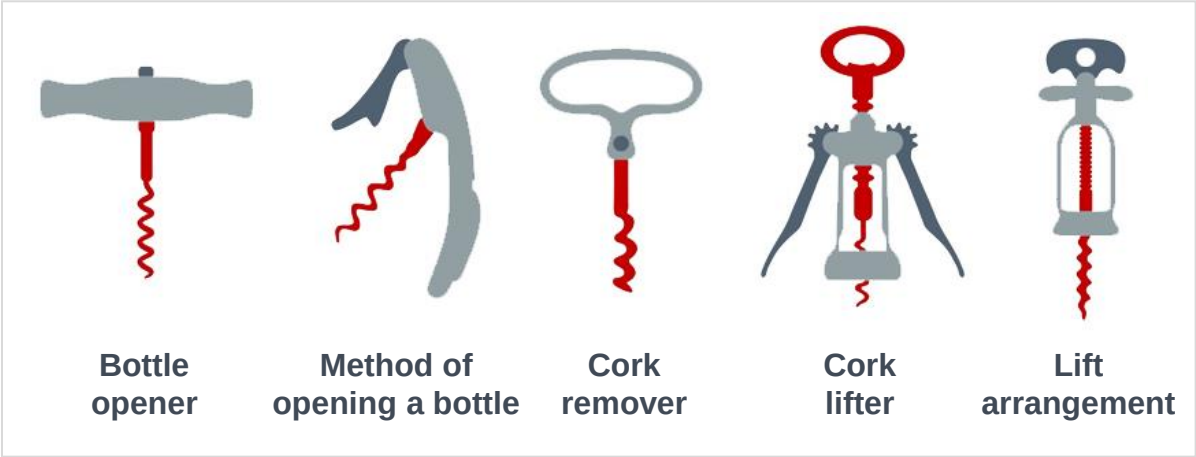
THE INTERNATIONAL PATENT CLASSIFICATION (IPC)

Sections	A, B, C, D, E, F, G, H, Y	
	A	Human Necessities
Classes	A47	Domestic articles or appliances, …
Sub-classes	A47J	Kitchen equipment, …
Groups	A47J37	**Baking; Roasting; Grilling; Frying** (bakers` ovens, non-domestic baking apparatus or equipment A21B ; domestic stoves or ranges F24B , F24C)
Sub-groups	●A47J37/06	• Roasters; Grills; Sandwich grills
	●● A47J37/08	•• Bread-toasters (electric heating elements H05B)

THE CPC, AN EXTENSION OF THE IPC

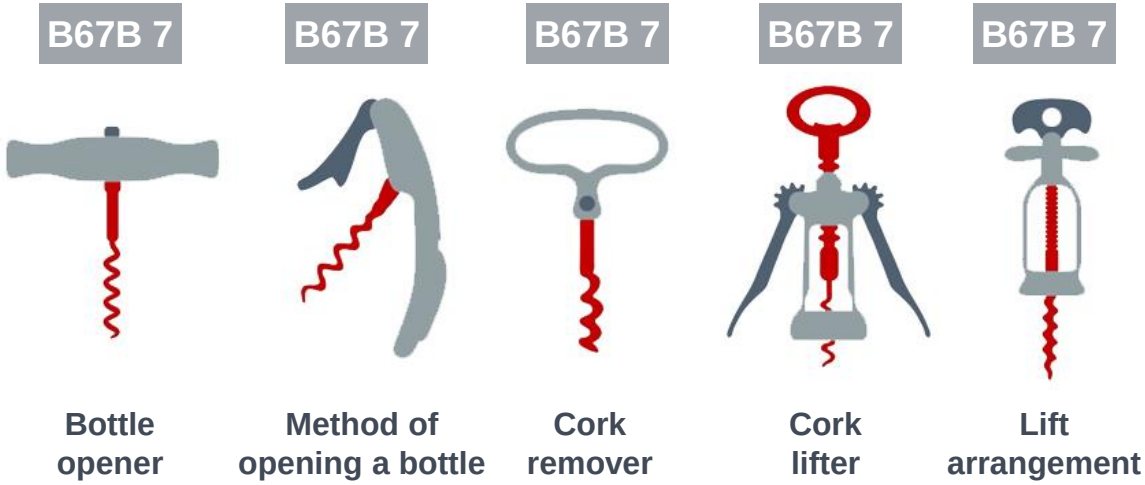
Sections	A, B, C, D, E, F, G, H, Y	
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Sub-groups	●A47J37/06	• Roasters; Grills; Sandwich grills
	●● A47J37/08	•• Bread-toasters (electric heating elements H05B)
	●●● A47J37/0814	••• {with automatic bread ejection or timing means } ({A47J 37/0857 takes precedence})
	●●●● A47J37/0821	•••• {with mechanical clockwork timers}

ONE INVENTION = DIFFERENT DESIGNATIONS



Differences in terminology make keyword searching difficult!

PATENT CLASSIFICATION: THE KEY TO EFFECTIVE SEARCHING



Classification symbol captures the search concept even though different terminologies are used in the patent documents

GENERIC LANGUAGE POSES A FURTHER PROBLEM FOR SEARCHING



Lift arrangement



Lift arrangement

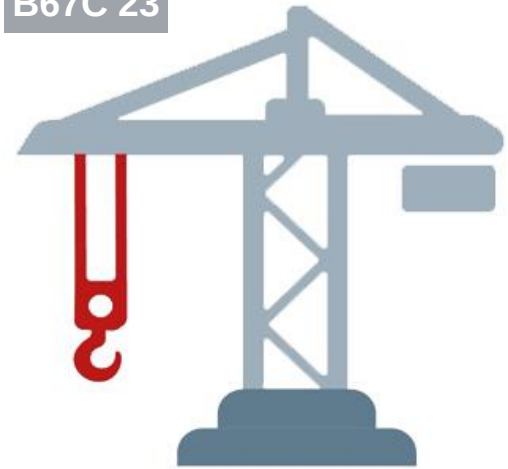
DIFFERENT LIFT ARRANGEMENTS IN DIFFERENT TECHNICAL CLASSES

B67B 7



Lift arrangement

B67C 23

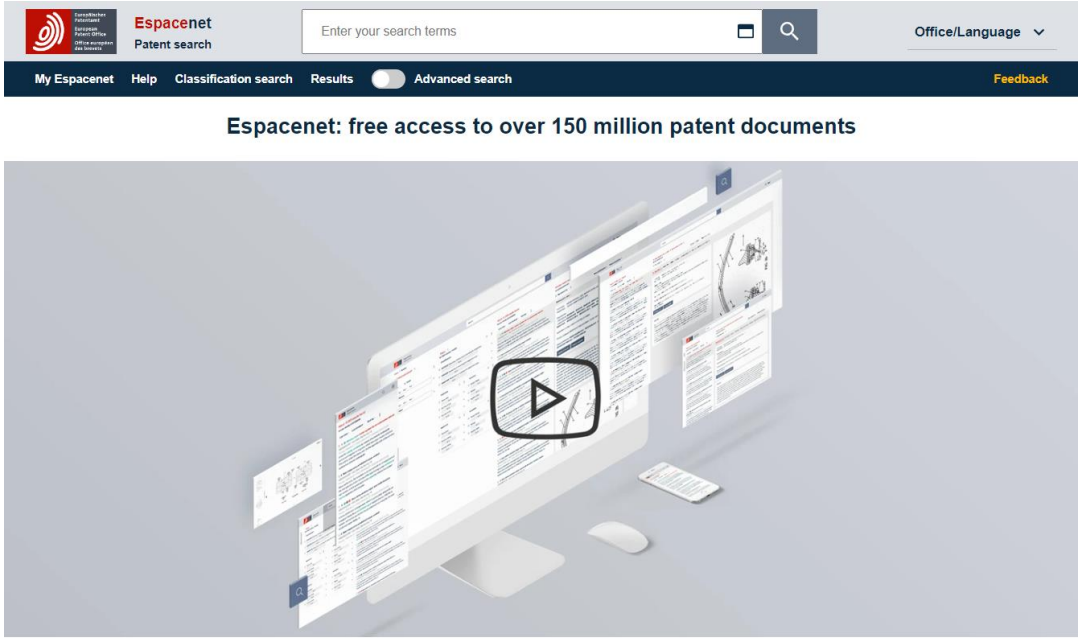


Lift arrangement

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USE ESPACENET TO SEARCH TECHNICAL INFORMATION



USE ESPACENET TO SEARCH TECHNICAL INFORMATION

Key product features

- Over 150 million patent documents
- From around 100 patent authorities
- Linked to Patent Translate (32 languages)
- Classified and indexed for easy retrieval
- Data from 1782 to today
- Free of charge

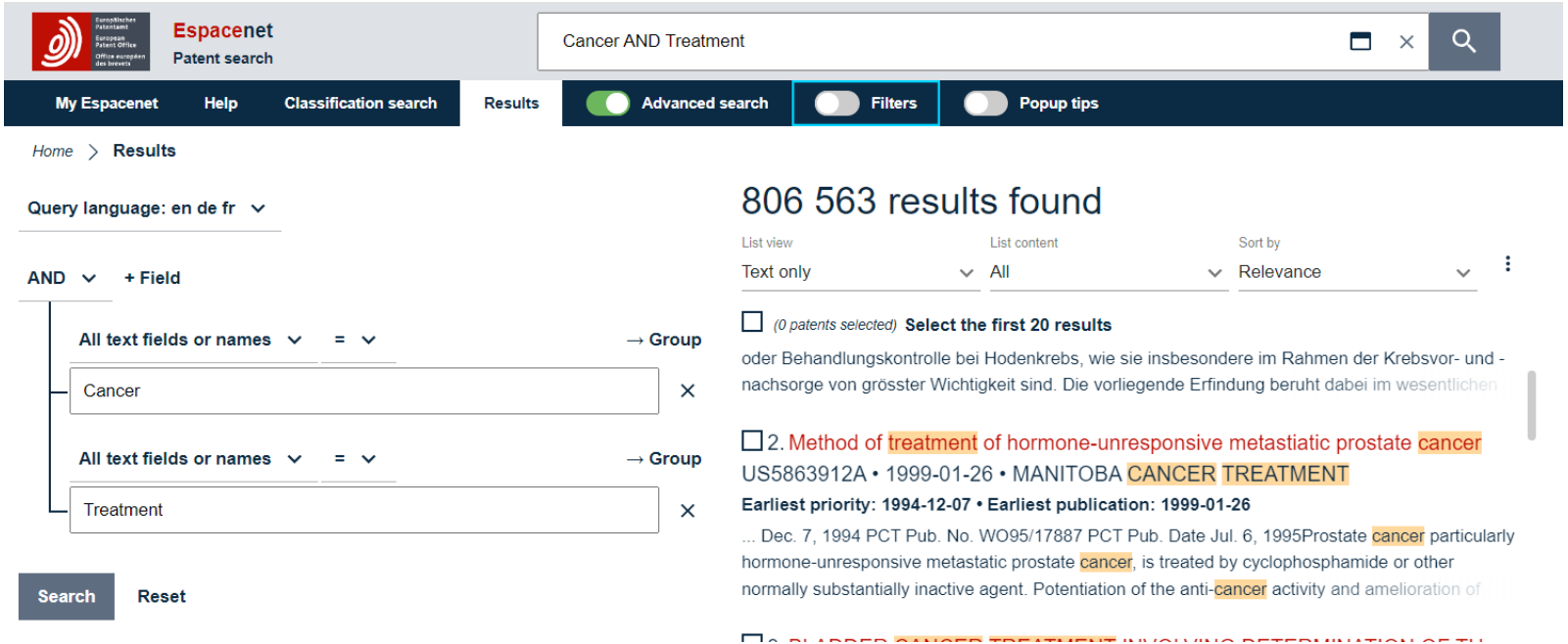
Key user benefits



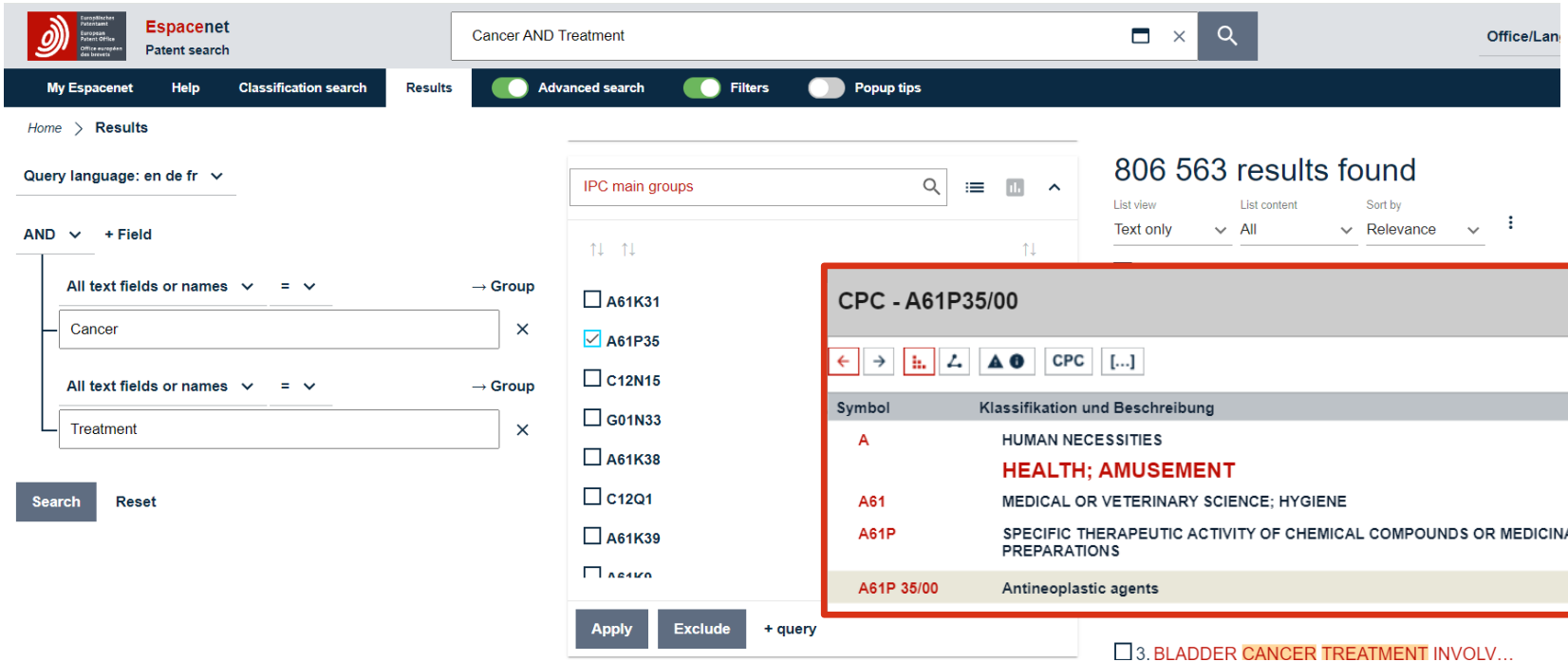
- Avoid duplication of R&D expenditure
- Find out what technology already exists and build on it
- Keep track of what others are doing
- Identify new partners, e.g. for licensing

epo.org/espacenet

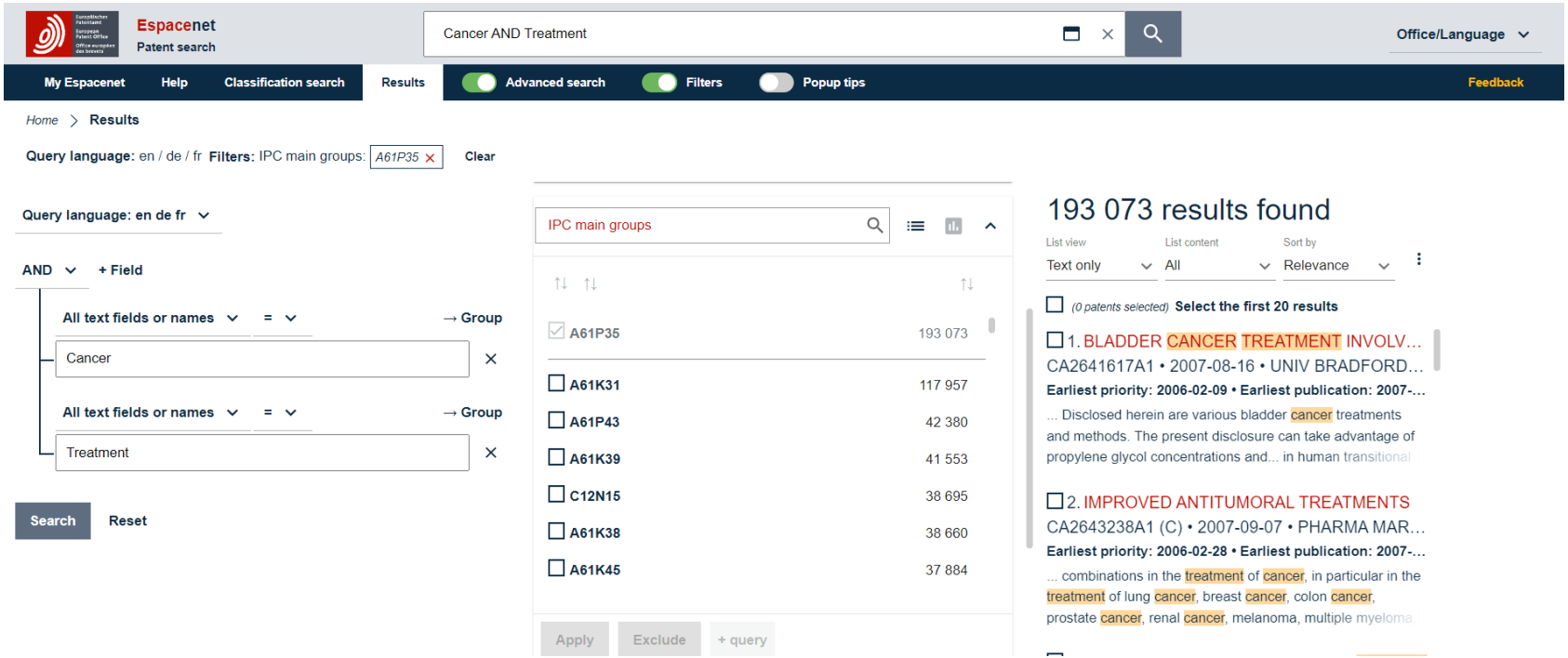
SEARCH PATENT DOCUMENTS FOR CANCER TREATMENT



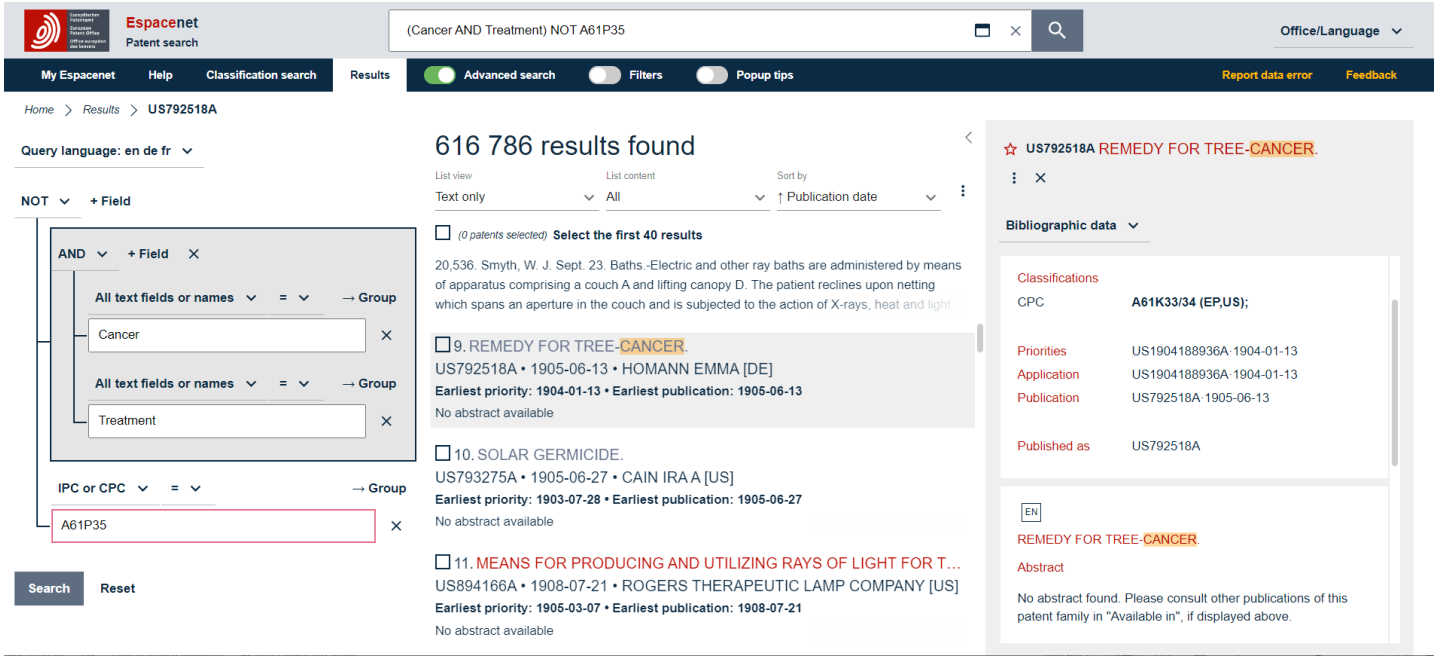
SEARCH PATENT DOCUMENTS FOR CANCER TREATMENT USING CLASSIFICATION FILTERS



SEARCH PATENT DOCUMENTS FOR CANCER TREATMENT CLASSIFICATION A61P35 (CANCER DRUGS)



DIFFERENCE
KEY WORDS VS CLASSIFICATION SEARCH



Kary Mullis‘ invention: Polymerase Chain Reaction (PCR)

US4683202 Process for amplifying nucleic acid sequences

United States Patent [19]
Mullis

[11] **Patent Number: 4,683,202**
[45] **Date of Patent: * Jul. 28, 1987**

[54] **PROCESS FOR AMPLIFYING NUCLEIC ACID SEQUENCES**

[75] Inventor: **Kary B. Mullis,** Kensington, Calif.
[73] Assignee: **Cetus Corporation,** Emeryville, Calif.

[*] Notice: The portion of the term of this patent subsequent to Jul. 28, 2004 has been disclaimed.

[21] Appl. No.: **791,308**

[22] Filed: **Oct. 25, 1985**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 716,975, Mar. 28, 1985, abandoned.

[51] **Int. Cl.**[4] **C12P 19/34;** C12N 15/00; C12N 1/00; C07H 21/04; C07H 21/02

[52] **U.S. Cl.** **435/91;** 435/177.3; 435/317; 536/27; 536/28; 536/29; 935/17; 935/18; 935/16

[58] **Field of Search** 435/91, 172.3, 317; 536/27, 28, 29; 935/17, 18

[56] **References Cited**

PUBLICATIONS

Gaubatz et al, "Strategies for Constructing Complementary DNA for Cloning", J. Theor. Biol. 95: 679 (1982).
Caton and Robertson, *Nucleic Acids Research,* vol. 7, pp. 1445–1456 (1979).
Rossi et al., *J. Biol. Chem.*, 257, 9226–9229 (1982).

Primary Examiner—James Martinell
Attorney, Agent, or Firm—Janet E. Hasak; Albert P. Halluin

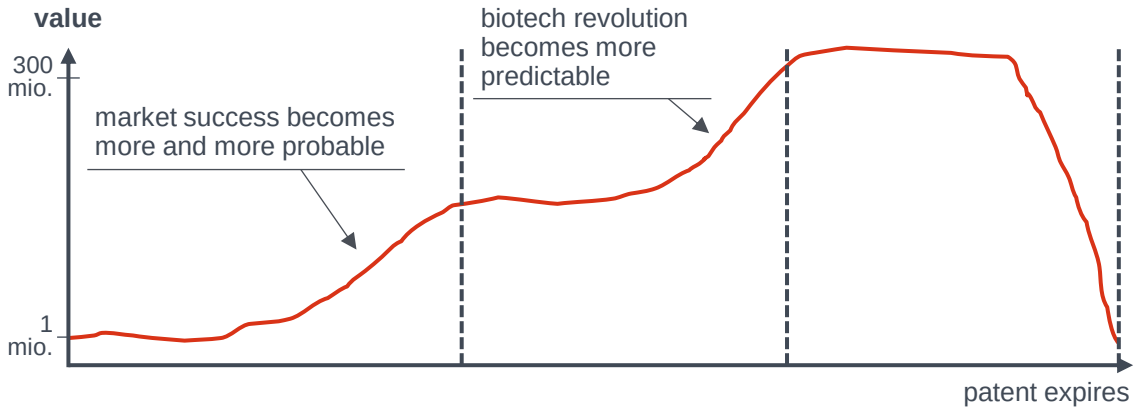
[57] **ABSTRACT**

The present invention is directed to a process for amplifying any desired specific nucleic acid sequence contained in a nucleic acid or mixture thereof. The process comprises treating separate complementary strands of the nucleic acid with a molar excess of two oligonucleotide primers, and extending the primers to form complementary primer extension products which act as templates for synthesizing the desired nucleic acid sequence. The steps of the reaction may be carried out stepwise or simultaneously and can be repeated as often as desired.

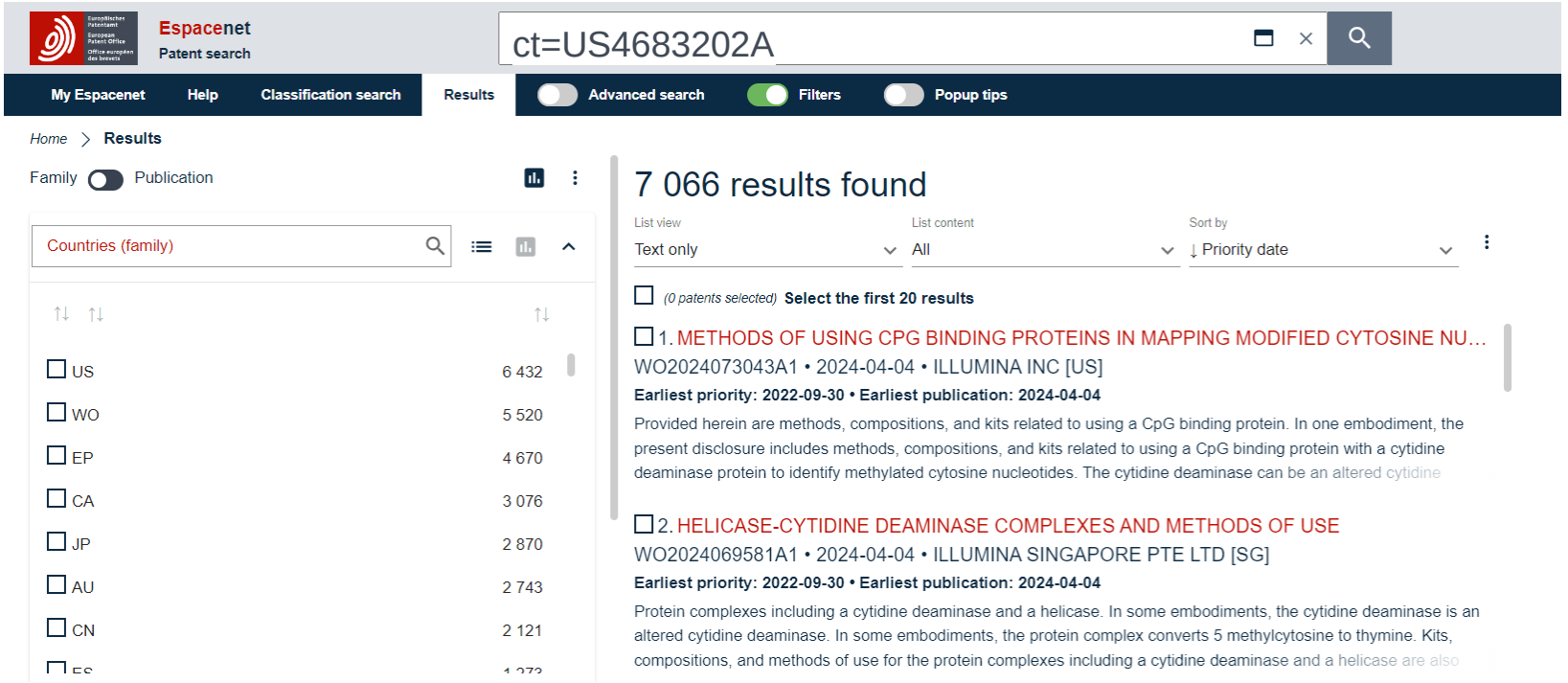
21 Claims, 12 Drawing Figures

THE DYNAMIC OF A PATENT'S VALUE: THE EXAMPLE OF US4683202A

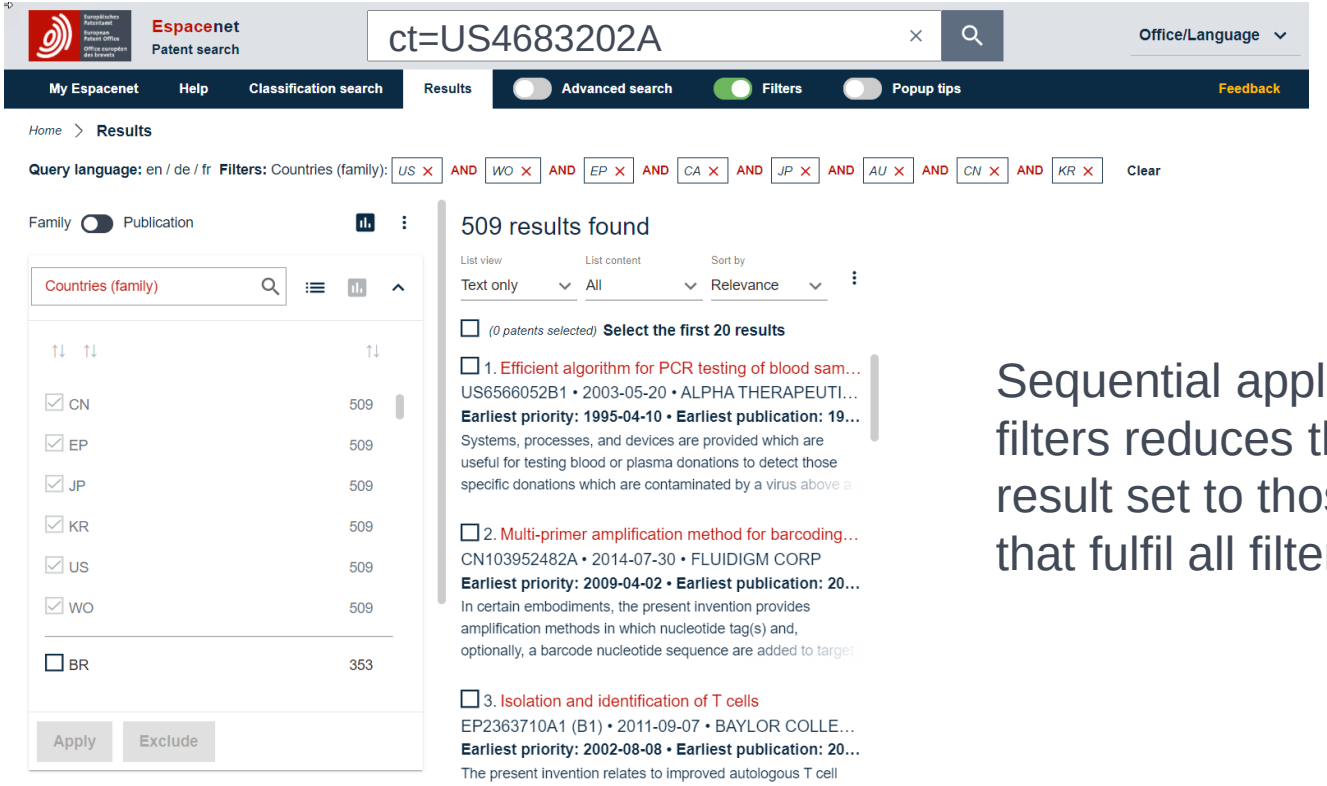
DNA polymerase chain reaction patented	improvements → broad applicability	commercial biotech "revolution"
"nice"	market success	extremely high demand



FORWARD CITATIONS: PROTECTED MARKETS

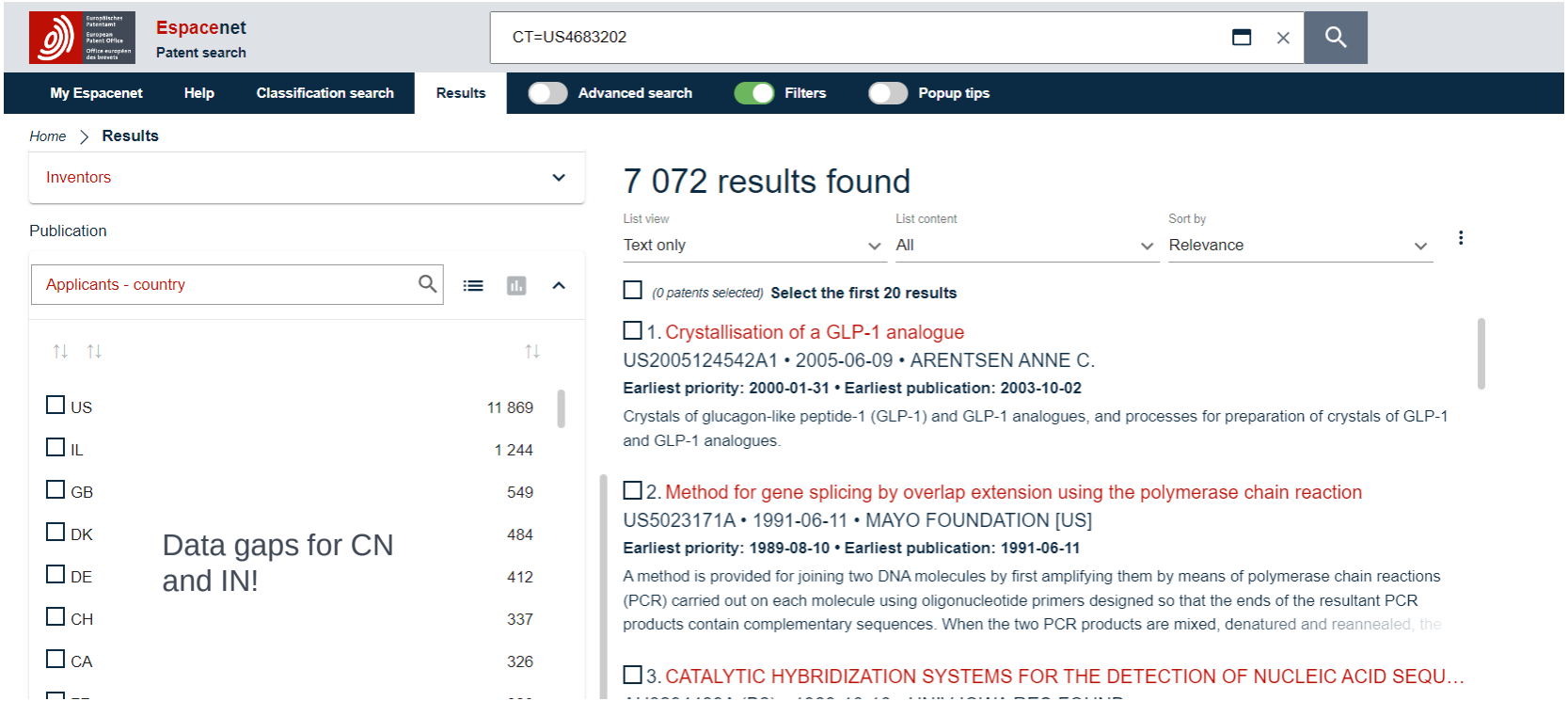


PATENTS WITH A LARGE COVERAGE

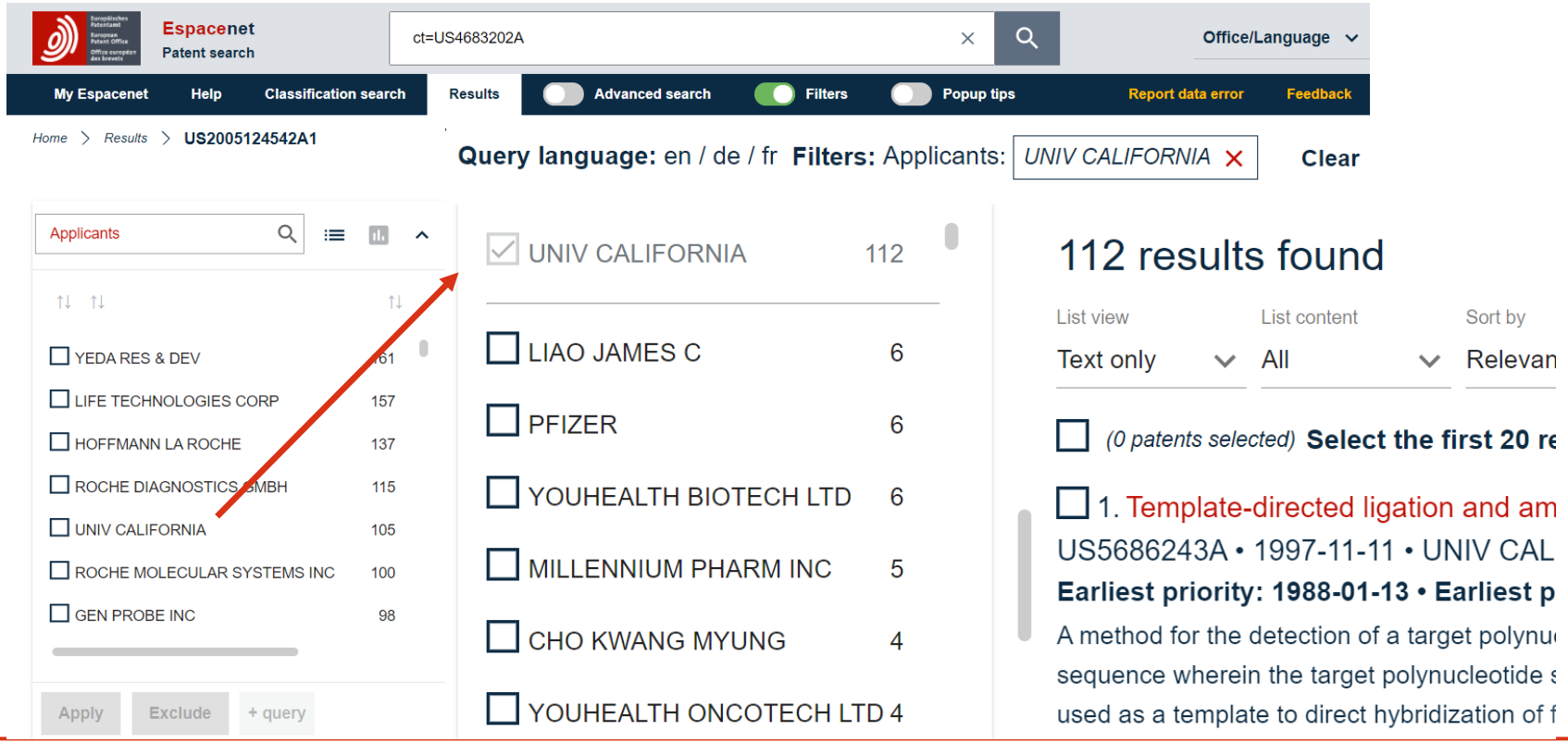


Sequential application of filters reduces the result set to those patents that fulfil all filters (AND operator)

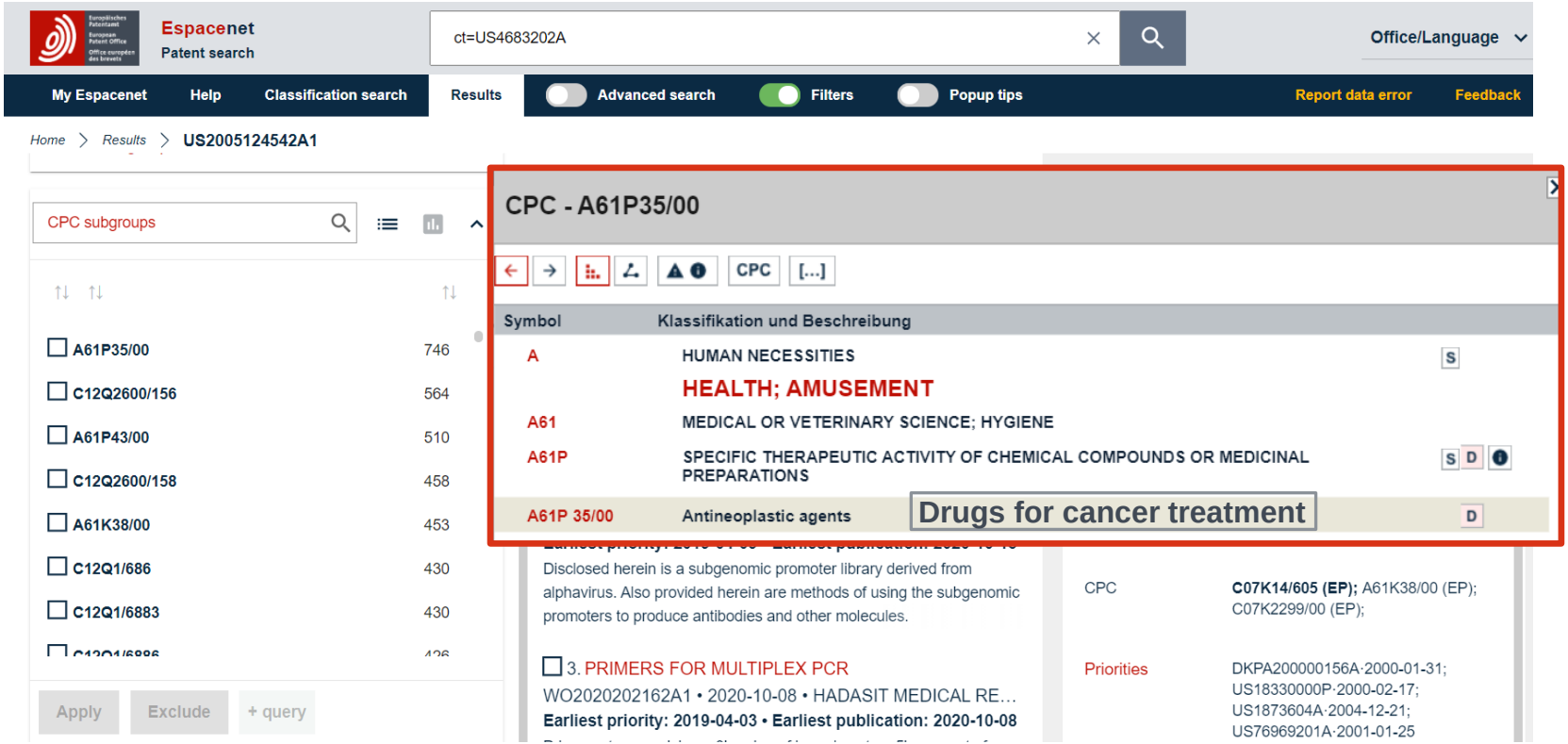
MAIN APPLICANT COUNTRIES



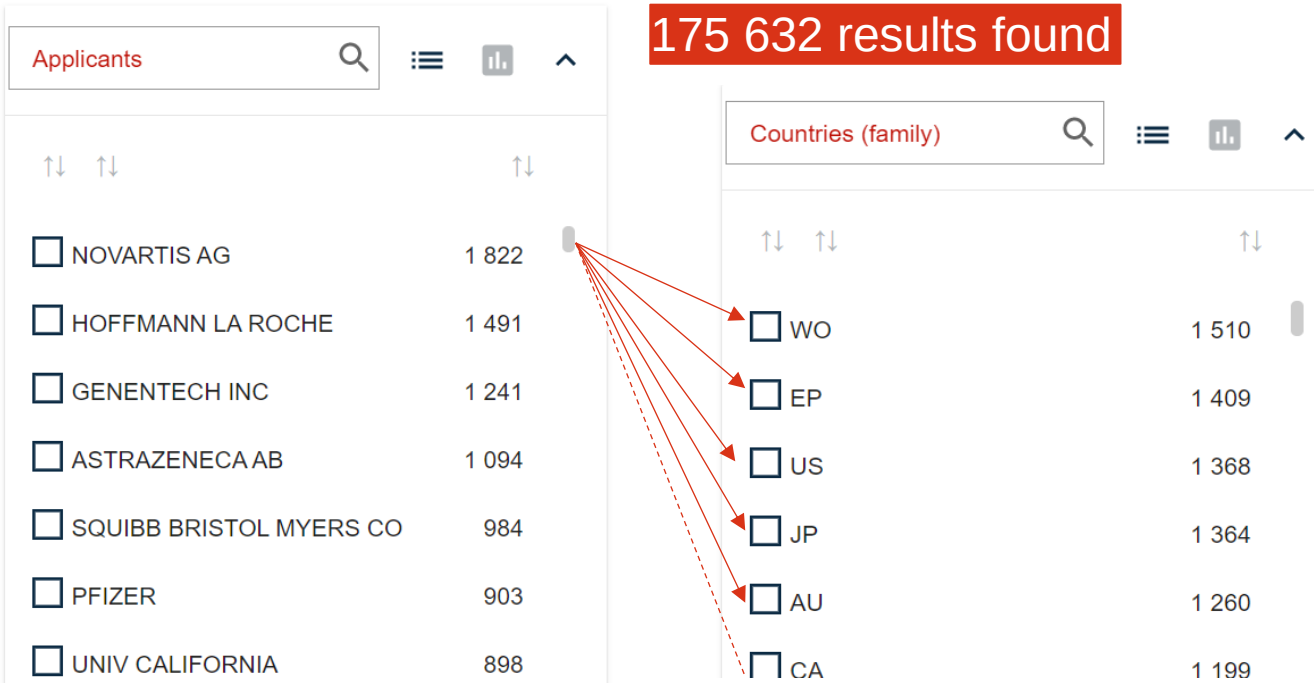
APPLICANTS AND THEIR COLLABORATIONS



USE OF THE TECHNOLOGY



COMPETITORS AND THEIR FILING STRATEGY IN A61P35 (CANCER DRUGS)



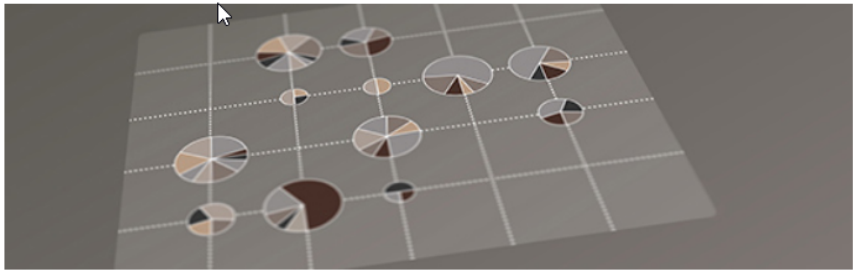
STATISTICAL OVERVIEW WITH ESPACENET



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THE EPO'S PATENT STATISTICAL DATABASE (PATSTAT)



Backbone data set for statistical analysis

The EPO's PATSTAT has become a point of reference in the field of patent intelligence and statistics. It helps you perform sophisticated statistical analyses of bibliographical and legal event patent data.

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PATSTAT contains bibliographical and legal event patent data from leading industrialised and developing countries. This is extracted from the EPO's databases and is either provided as bulk data or can be consulted online.

NAME HARMONISATION

Result table 52 / 648

Row	Original_name	Occurances	PATSTAT_Standardised_Name
29	国立研究开发法人理化学研究所	1	NOVARTIS
30	노파르티스 파르마 아게	2	NOVARTIS PHARMACEUTICALS
31	노파르티스 아게	2	NOVARTIS
32	노바티스 티어게준트하이트 아게	2	NOVARTIS TIERGESUNDHEIT
33	노바르티스 아게	2	NOVARTIS
34	ノバルティスヴァクシンズアンド ダイアグノスティクス エスアールエル	2	NOVARTIS VACCINES AND DIAGNOSTICS
35	ノバルティスアーゲー	2	NOVARTIS
36	ノバルティス・フォルシュングスシュティフトゥング・ツヴァイクニー...	1	NOVARTIS FORSCHUNGSSTIFTUNG ZWEIGNIEDERLASSUNG FRIEDRICH MIESCHER INST FOR BIOMEDIC
37	ノバルティス バクシンズ アンド ダイアグノスティックス，インコーポ...	2	NOVARTIS VACCINES AND DIAGNOSTICS
38	ノバルティス エージー	2	NOVARTIS
39	ノバルティス ヴァクシンズ アンド ダイアグノスティクス ゲーエムベ...	1	NOVARTIS VACCINES AND DIAGNOSTICS
40	ノバルティス ヴァクシンズ アンド ダイアグノスティクス エスアール...	2	NOVARTIS VACCINES AND DIAGNOSTICS
41	ノバルティス アーゲーゲー	1	NOVARTIS
42	ノバルティス アーゲー	2	NOVARTIS
43	نوفارتيس فاكسينز آند دياجنوستيكس ابلك.	1	NOVARTIS VACCINES AND DIAGNOSTICS
44	نوفارتيس فارما جي ام بي اتش	1	NOVARTIS
45	نوفارتيس سيدس بي في	1	NOVARTIS SEEDS
46	نوفارتيس ايه جي	5	NOVARTIS
47	نوفارتيس ايه جي	1	NOVARTIS
48	نوفارتس ايه جي	1	NOVARTIS
49	НОВАРТІС АГ	3	NOVARTIS
50	НОВАРТИС ФАРМА АГ (CH)	1	NOVARTIS PHARMACEUTICALS
51	НОВАРТИС ФАРМА АГ	2	NOVARTIS PHARMACEUTICALS

More than 600 variants of the applicant name NOVARTIS

STATISTICS ON A61P35 (→ DRUGS TO TREAT CANCER)

Original applicant name

Configure / view statistics | Top elements | Parameters | PDF

Rank ▲	Applicant - Name	
1	Novartis AG	9 607
2	AstraZeneca AB	6 083
3	Genentech, Inc.	4 982
4	F. HOFFMANN-LA ROCHE AG	4 577
5	Bristol-Myers Squibb Company	4 200
6	Merck Patent GmbH	4 047
7	Eli Lilly and Company	3 470
8	PFIZER PRODUCTS INC.	3 360
9	Pfizer Inc.	3 141
10	Schering Corporation	2 348
11	The Regents of the University of Calif…	2 156
11	Boehringer Ingelheim International G…	2 156
12	Amgen Inc.	2 076
13	SANOFI-AVENTIS	1 999
14	SANOFI	1 906
15	SMITHKLINE BEECHAM CORPORA…	1 823
16	VERTEX PHARMACEUTICALS INC…	1 806
17	Bayer Pharma Aktiengesellschaft	1 693
18	Merck & Co., Inc.	1 677

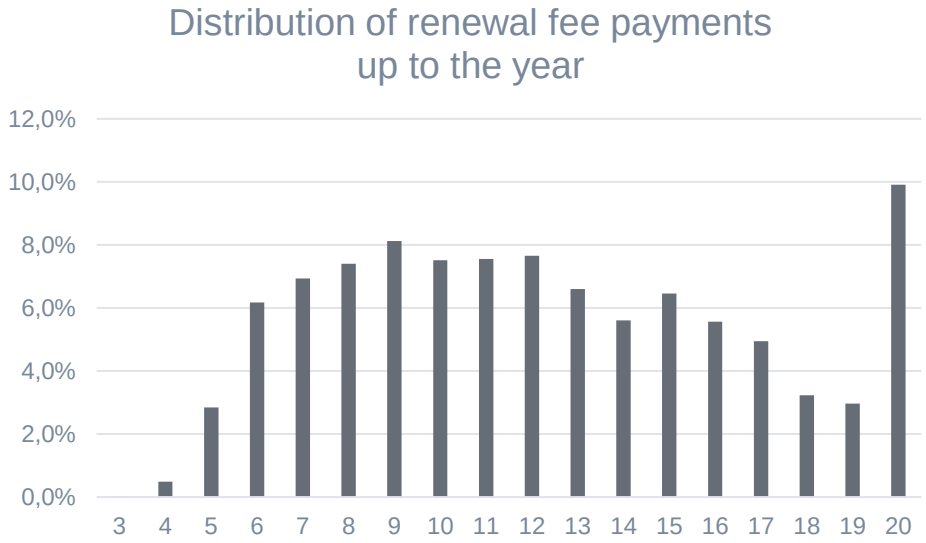
PATSTAT Standardised Name (PSN)

Configure / view statistics | Top elements | Parameters | PDF

Rank ▲	Applicant - PATSTAT standardized name	
1	NOVARTIS	10 444
2	ROCHE	8 346
3	ASTRAZENECA	6 614
4	GENENTECH	6 586
5	BRISTOL-MYERS SQUIBB COMPANY	6 030
6	MERCK PATENT	5 462
7	SCHERING CORPORATION	5 213
8	ELI LILLY & COMPANY	4 998
9	SANOFI	4 551
10	PFIZER	4 484
11	PFIZER PRODUCTS	4 256
12	MERCK & COMPANY	3 760
13	HARVARD UNIVERSITY	3 215
14	AVENTIS PHARMA	2 865
15	SMITHKLINE BEECHAM CORPORA…	2 820
16	JANSSEN PHARMACEUTICA	2 772
17	AMGEN	2 751
18	CHINESE ACADEMY OF SCIENCES	2 745

ANALYSIS OF ANNUAL FEES WITH PATSTAT

NOVARTIS EP PATENTS

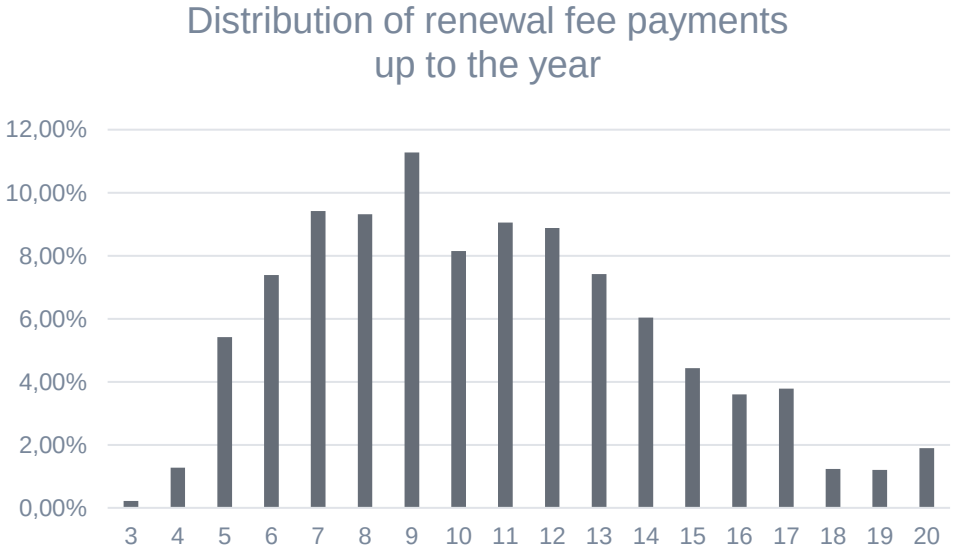


Based on post grant data, reported from national patent offices to the EPO

The maintenance time depends on the industry.

Medicine→ long time to market, large investments, only few make it. (SPCs!)

ANALYSIS OF ANNUAL FEES WITH PATSTAT
EP PATENTS FROM AUTOLIV (AUTOMOTIVE SAFETY SUPPLIER)

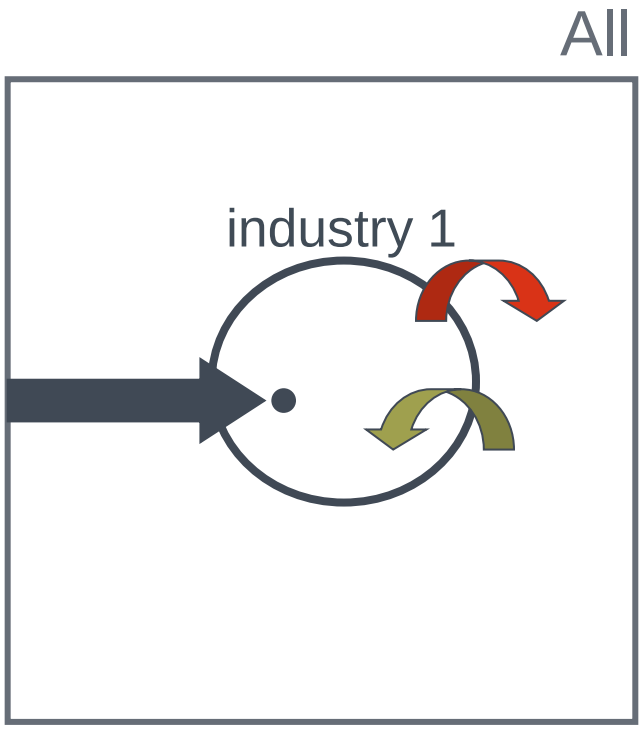


Based on post grant data, reported from national patent offices to the EPO

The maintenance time depends on the industry and the business model of the Patent owner.

Who wants to drive a car with safety features that are 20 years old?

ANALYSIS OF CITATION FLOWS WITH PATSTAT



A: What are the most influential patents of the industry?

B: Which technology does the industry build on?

C: Where is the industry's technology mostly used

WHO IS CITING WHO? KNOWLEDGE TRANSFER

cited	citing company	families cited
ITREC	ITREC [NL]	19
ITREC	DEME OFFSHORE BE [BE]	8
ITREC	DELTA LABORATORIES HOLDING [NL]	6
ITREC	SAIPEM [IT]	5
ITREC	HEEREMA MARINE CONTRACTORS NEDERLAND SE [NL]	4
ITREC	MACGREGOR NORWAY [NO]	3
ITREC	SIEMENS GAMESA RENEWABLE ENERGY [DK]	3
ITREC	W3G MARINE [GB]	3
ITREC	AIRBUS OPERATIONS [FR]	2
ITREC	AKER OFFSHORE WIND AS [NO]	2
ITREC	DALIAN UNIVERSITY OF TECHNOLOGY [ ]	2
ITREC	JIANGSU GOLDWIND SCIENCE & TECHNOLOGY COMPANY [CN]	2
ITREC	KEPPEL OFFSHORE & MARINE TECHNOLOGY CENTRE [SG]	2
ITREC	REEL [FR]	2
ITREC	SINOVEL WIND GROUP COMPANY [CN]	2
ITREC	ACE E&T (ENGINEERING & TECHNOLOGY) [KR]	1
ITREC	AMPELMANN HOLDING [NL]	1
...	...	...
ITREC	DOLFINES [FR]	1
ITREC	ENABL A/S [DK]	1

Observations:

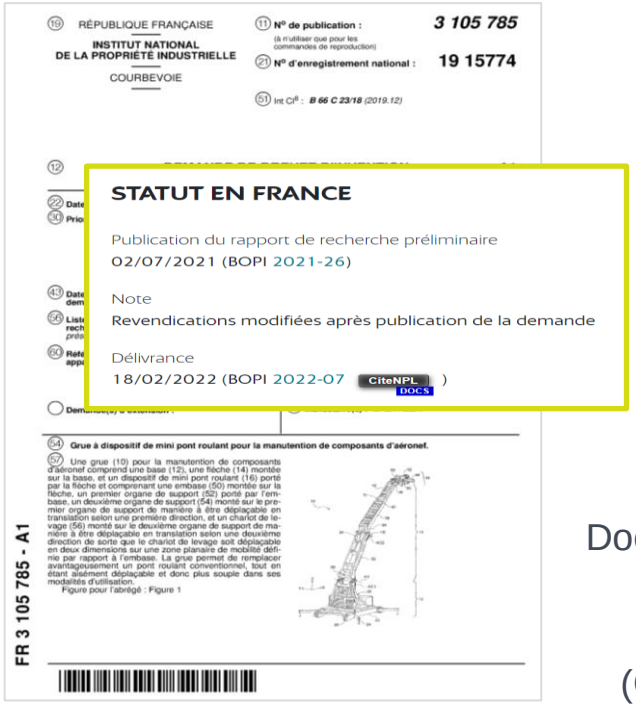
ITREC-ITREC → self citations

85 companies

Monitor the citing applications!

- granted? In what countries?
- Useful inventions? Co-licensing?
- Infringement?
- New markets
- Airbus operations? Inventions used outside offshore wind technology?

WHO IS CITING WHO? KNOWLEDGE TRANSFER



(19) RÉPUBLIQUE FRANÇAISE
INSTITUT NATIONAL DE LA PROPRIÉTÉ INDUSTRIELLE
COURBEVOIE

(11) N° de publication : **3 105 785**
(21) N° d'enregistrement national : **19 15774**
(51) Int Cl⁸ : *B 66 C 23/18* (2019.12)

STATUT EN FRANCE

Publication du rapport de recherche préliminaire
02/07/2021 (BOPI 2021-26)

Note
Revendications modifiées après publication de la demande

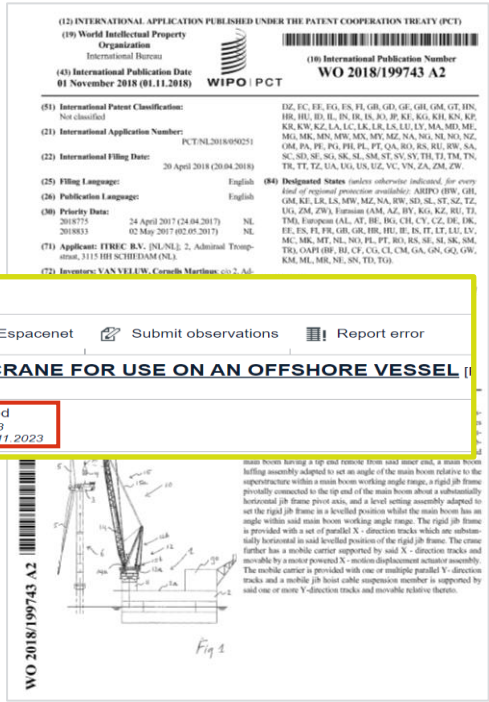
Délivrance
18/02/2022 (BOPI 2022-07 CiteNPL DOCS)

(54) **Grue à dispositif de mini pont roulant pour la manutention de composants d'aéronef.**

(57) Une grue (10) pour la manutention de composants d'aéronef comprend une base (12), une flèche (14) montée sur la base, et un dispositif de mini pont roulant (16) porté par la flèche et comprenant une embase (50) montée sur la flèche, un premier organe de support (52) porté par l'embase, un deuxième organe de support (54) monté sur le premier organe de support de manière à être déplaçable en translation selon une première direction, et un chariot de levage (56) monté sur le deuxième organe de support de manière à être déplaçable en translation selon une deuxième direction de sorte que le chariot de levage soit déplaçable en deux dimensions sur une zone planaire de mobilité définie par rapport à l'embase. La grue permet de remplacer avantageusement un pont roulant conventionnel, tout en étant aisément déplaçable et donc plus souple dans ses modalités d'utilisation.
Figure pour l'abrégé : Figure 1

FR 3 105 785 - A1

Airbus operations?
New market?



(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)
(19) World Intellectual Property Organization
International Bureau
(10) International Publication Number
WO 2018/199743 A2
(43) International Publication Date
01 November 2018 (01.11.2018)
WIPO | PCT

(51) International Patent Classification:
Not classified
(21) International Application Number:
PCT/NL2018/050251
(22) International Filing Date:
20 April 2018 (20.04.2018)
(25) Filing Language: English
(26) Publication Language: English
(30) Priority Data:
2018775 24 April 2017 (24.04.2017) NL
2018833 02 May 2017 (02.05.2017) NL
(71) Applicant: ITREC B.V. [NL/NL]; 2, Admiral Trompstraat, 3115 HH SCHIEDAM (NL).
(72) Inventors: VAN VELUW, Cornelis Martinus; c/o 2, Ad-

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

EP About this file: EP3615467

Refine search | ST36 | Show history | Espacenet | Submit observations | Report error

EP3615467 - A MOTION COMPENSATING CRANE FOR USE ON AN OFFSHORE VESSEL [this link]

Status

Grant of patent is intended
Status updated on 30.10.2023
Database last updated on 27.11.2023

Does Airbus use ITREC technology?
Check claims!
(Cross-) Licencing?

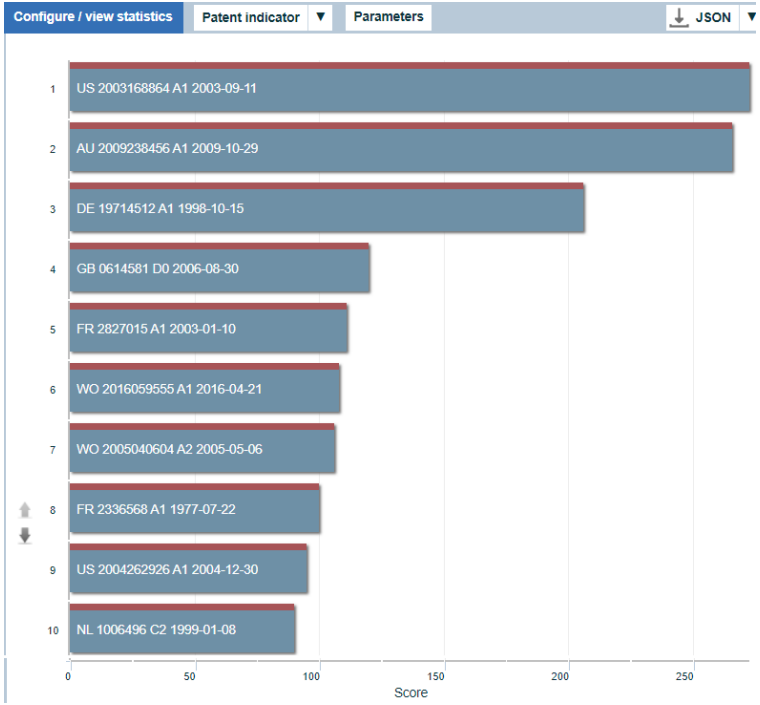
WO 2018/199743 A2

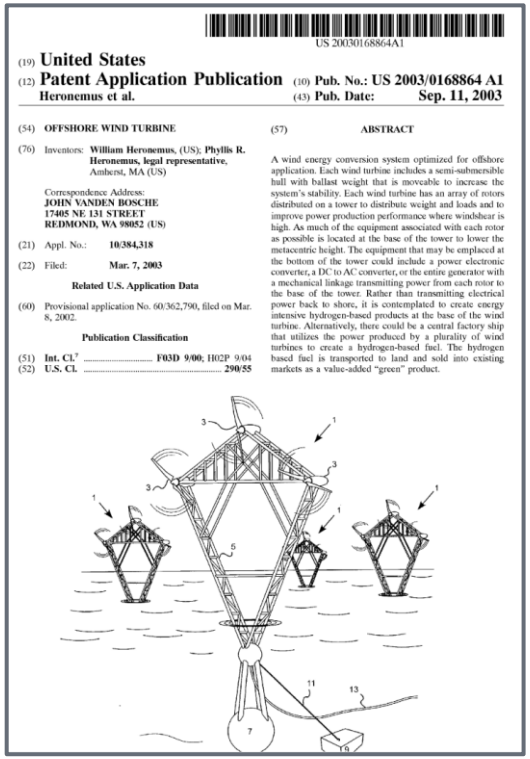
main boom having a tip end remote from said inner end, a main boom luffing assembly adapted to set an angle of the main boom relative to the superstructure within a main boom working angle range, a rigid jib frame pivotally connected to the tip end of the main boom about a substantially horizontal jib frame pivot axis, and a level setting assembly adapted to set the rigid jib frame in a levelled position whilst the main boom has an angle within said main boom working angle range. The rigid jib frame is provided with a set of parallel X - direction tracks which are substantially horizontal in said levelled position of the rigid jib frame. The crane further has a mobile carrier supported by said X - direction tracks and movable by a motor powered X - motion displacement actuator assembly. The mobile carrier is provided with one or multiple parallel Y - direction tracks and a mobile jib hoist cable suspension member is supported by said one or more Y-direction tracks and movable relative thereto.

Fig 1

EXAMPLE: KNOWLEDGE FLOWS – PATENT INDICATOR

Top forward citations (family-family)





US 20030168864A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2003/0168864 A1**

Heronemus et al. (43) **Pub. Date: Sep. 11, 2003**

(54) **OFFSHORE WIND TURBINE**

(76) Inventors: **William Heronemus**, (US); **Phyllis R. Heronemus, legal representative**, Amherst, MA (US)

Correspondence Address:
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17405 NE 131 STREET
REDMOND, WA 98052 (US)

(21) Appl. No.: **10/384,318**

(22) Filed: **Mar. 7, 2003**

Related U.S. Application Data

(60) Provisional application No. 60/362,790, filed on Mar. 8, 2002.

Publication Classification

(51) **Int. Cl.**[7] **F03D 9/00**; H02P 9/04

(52) **U.S. Cl.** **290/55**

(57) **ABSTRACT**

A wind energy conversion system optimized for offshore application. Each wind turbine includes a semi-submersible hull with ballast weight that is moveable to increase the system's stability. Each wind turbine has an array of rotors distributed on a tower to distribute weight and loads and to improve power production performance where windshear is high. As much of the equipment associated with each rotor as possible is located at the base of the tower to lower the metacentric height. The equipment that may be emplaced at the bottom of the tower could include a power electronic converter, a DC to AC converter, or the entire generator with a mechanical linkage transmitting power from each rotor to the base of the tower. Rather than transmitting electrical power back to shore, it is contemplated to create energy intensive hydrogen-based products at the base of the wind turbine. Alternatively, there could be a central factory ship that utilizes the power produced by a plurality of wind turbines to create a hydrogen-based fuel. The hydrogen based fuel is transported to land and sold into existing markets as a value-added "green" product.

EXAMPLE: KNOWLEDGE FLOWS

Top citing classes, not co-assigned with off shore wind energy!

CITING_CPC	publications	Citing technologies
Y02E 10	2449	renewable energy sources
B63B 35	1155	Vessels & floating structures
E02D 27	759	Foundations as substructures
E02B 17	597	Artificial islands mounted on piles, platforms on raisable legs
Y02E 60	531	Energy storage
B63B 21	505	Tying-up; Shifting, towing, or pushing equipment; Anchoring
H02K 7	305	Dynamos, couplings, flywheels
H02J 3	277	Circuit arrangements (load balancing, fault detections)
B63B 27	250	Arrangement of ship-based loading or unloading equipment (cranes)
Y02A 40	241	Adaptation technologies in agriculture (fisheries, aquaculture !)
A01K 61	214	Culture of aquatic animals
B63B 39	191	Equipment to decrease pitch, roll, or like unwanted vessel movements
E04H 12	178	Towers; Masts or poles
B64C 39	170	Aircraft (wings, blades)
C02F 1	164	Treatment of water, waste water, but also ELECTROLYSIS !
B66C 23	163	Cranes
B63H 21	151	Use of propulsion power plant or units on vessels
H02S 20	148	Supporting structures for PV modules (floating !)

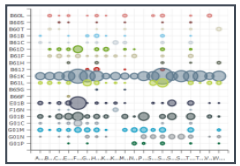
Methodology:

1. Select documents classified in “off shore wind”.
2. Select all citing publications
3. Statistical analysis of classification symbols citing documents

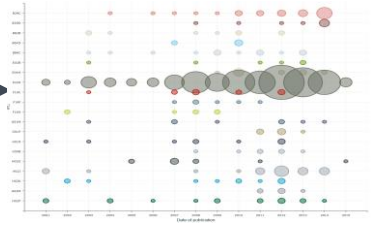
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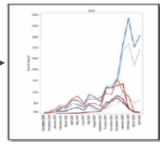
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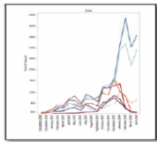


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local analysis / visualization (**single table**)

Content

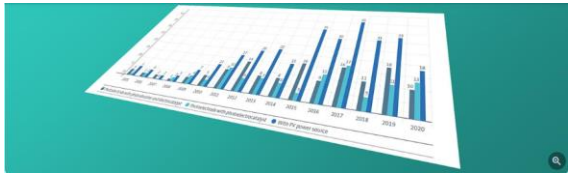
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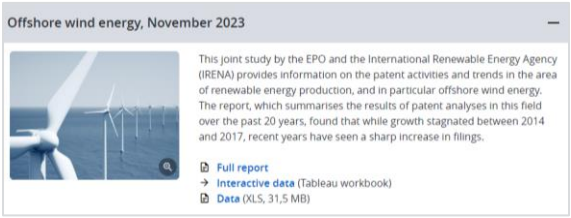
PATENT INSIGHT REPORTS

Focus on future and emerging technologies

Reports include

- search strategy to retrieve relevant information (based on public data)
- key findings
- supplementary material





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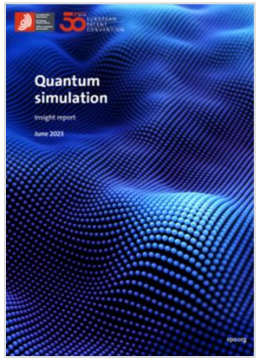
Topic	Status
Quantum metrology and sensing	Published (2019)
Cosmonautics	Published (2021)
Quantum technologies and space	Published (2021)
Electrolysers for hydrogen production	Published (2022)
Space-borne sensing and green applications	Published (2022)
Quantum computing	Published (2023)
Quantum simulation	Published (2023)
mRNA technologies	Published (2023)
Offshore wind energy	Published (2023)
Propulsion systems for space	Planned (2024)
Quantum communication	Planned (2024)
Advances in photovoltaics	Planned (2024)







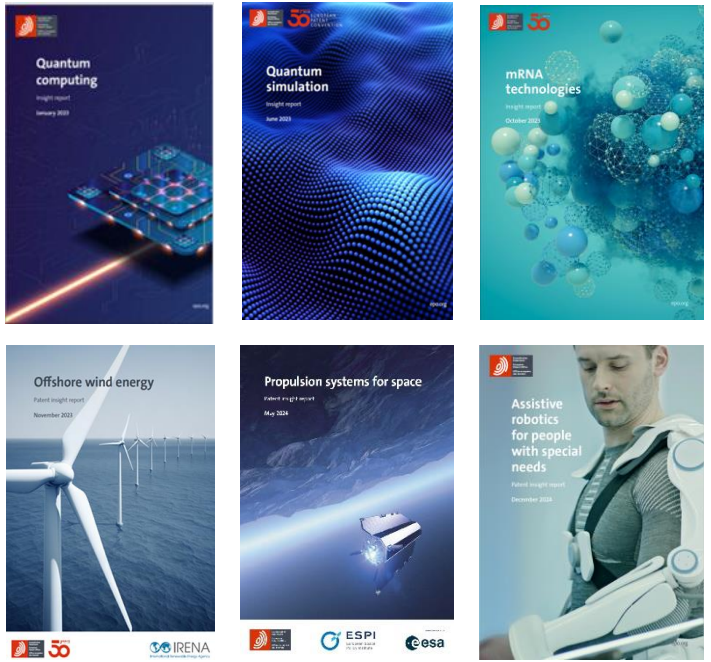




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Most recent reports:

- Quantum computing (January 2023)
- Quantum simulation (June 2023)
- mRNA technologies (October 2023)
- Offshore wind energy (November 2023)
- Propulsion systems for space (May 2024)
- Assistive robotics (December 2024)
- Plastics in transition (forthcoming April 2025)



Available at: epo.org/insight-reports

PATENT ANALYTICS AS A PROCESS

Preparation

- Select co-operation partners
- Identify relevant technology fields
- Consult with experts (external and examiners)

Collection and analyses

- Develop queries (key words, classifications)
- Improve precision and recall
- Statistical analyses

Insight

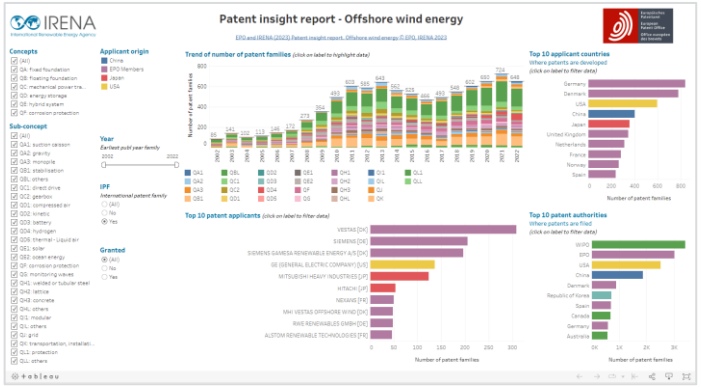
- Visualise dataset and trends
- Identify connections, correlations and networks
- Formulate insights, intelligence and conclusions

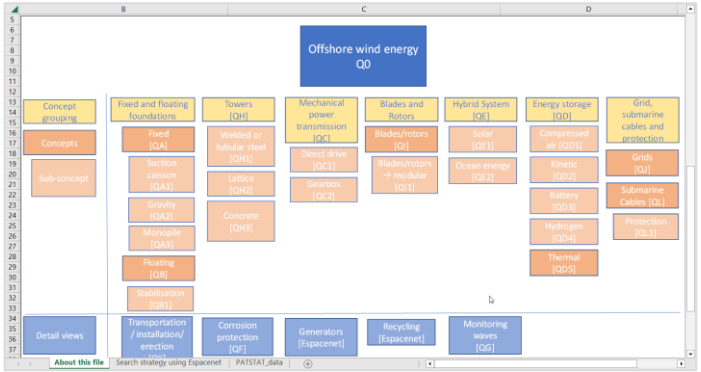
Knowledge sharing and training

- Explain approach
- Share
  - Queries
  - Best practices
  - Lessons learned
- Training

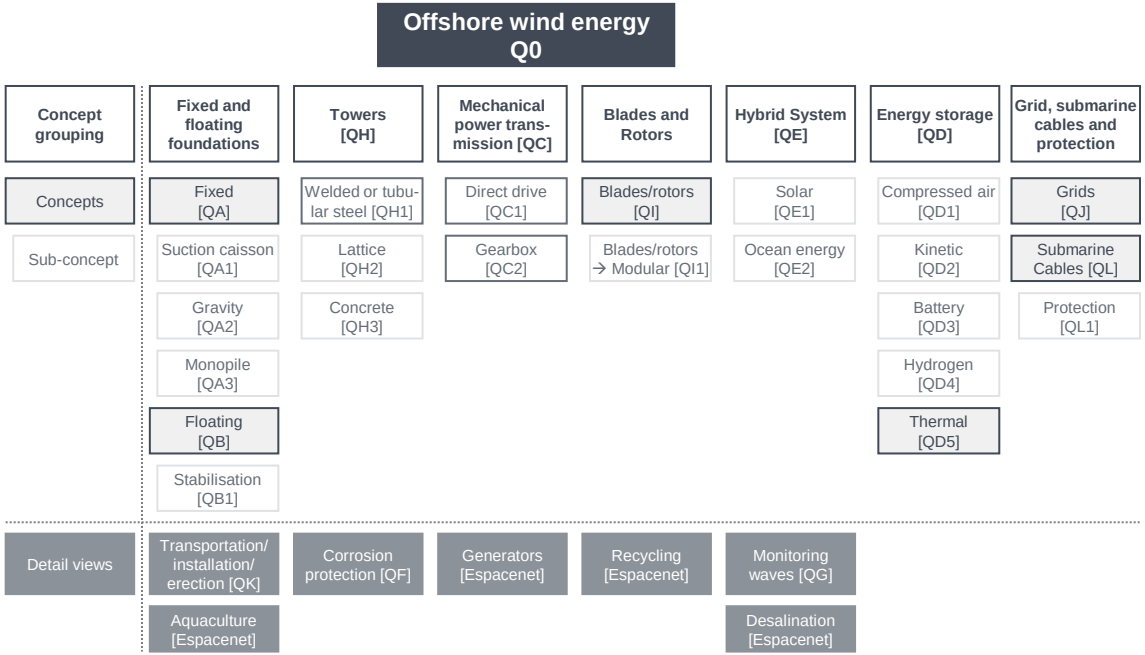
PATENT INSIGHT REPORT OFFSHORE WIND ENERGY



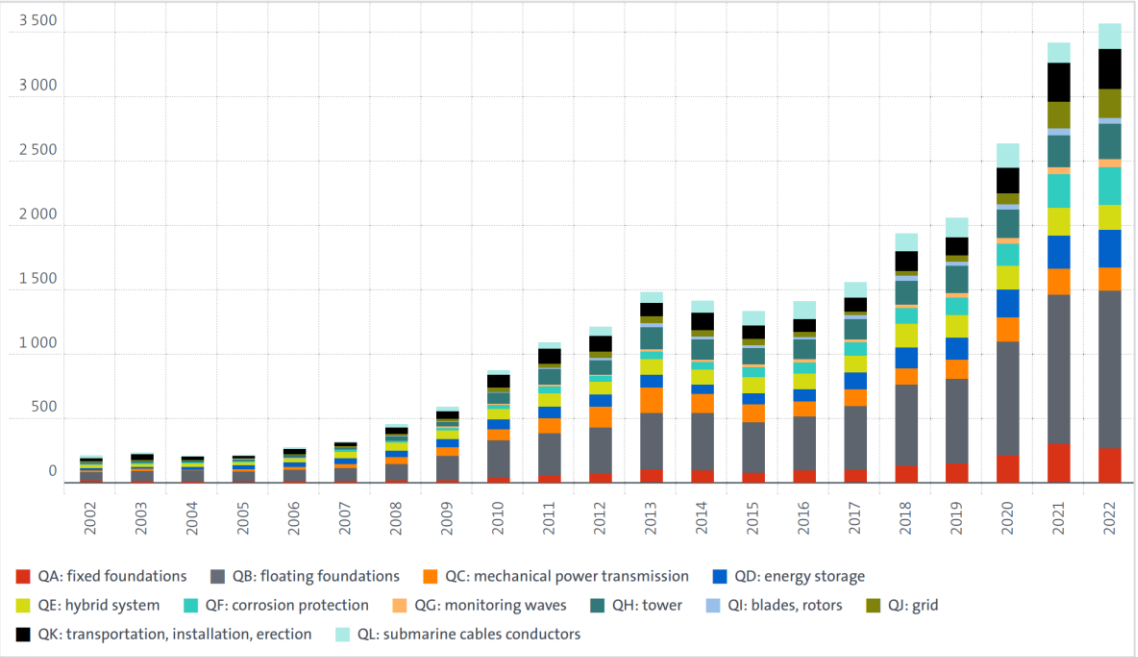




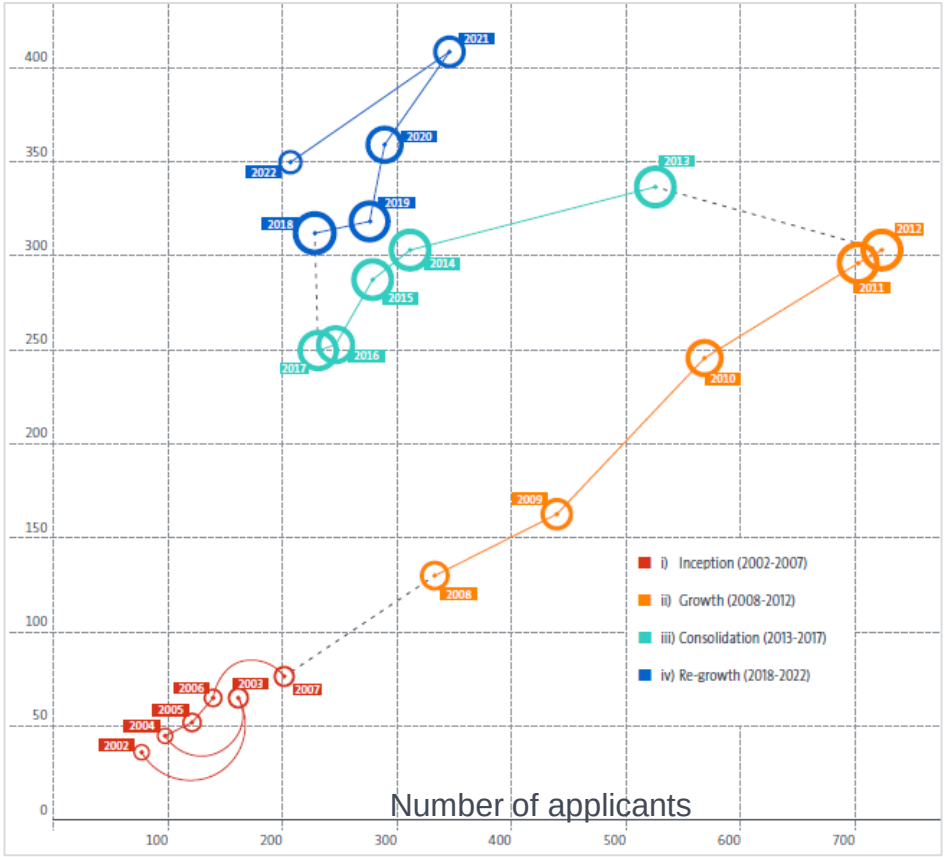
OFFSHORE WIND ENERGY



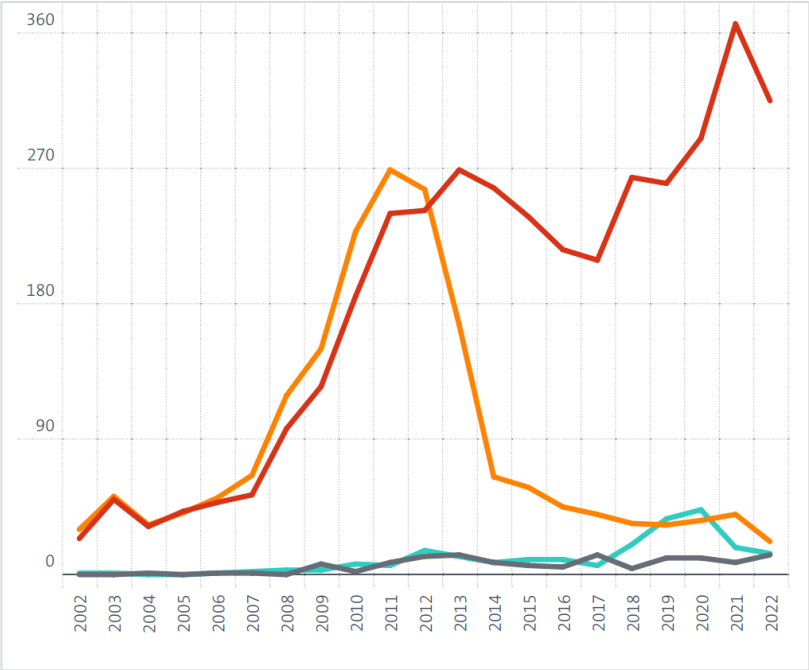
OFFSHORE WIND ENERGY
WORLDWIDE PATENT FAMILIES

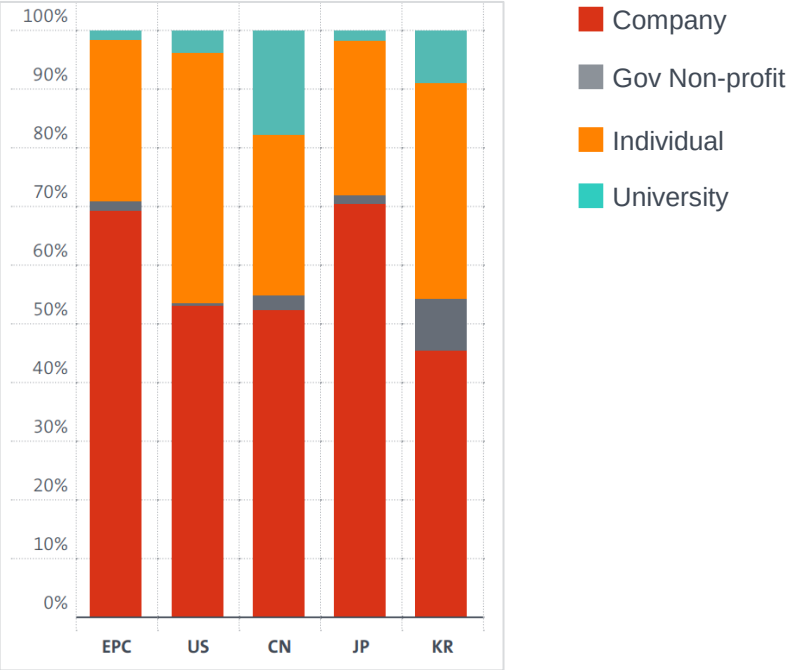


MATURITY MAP

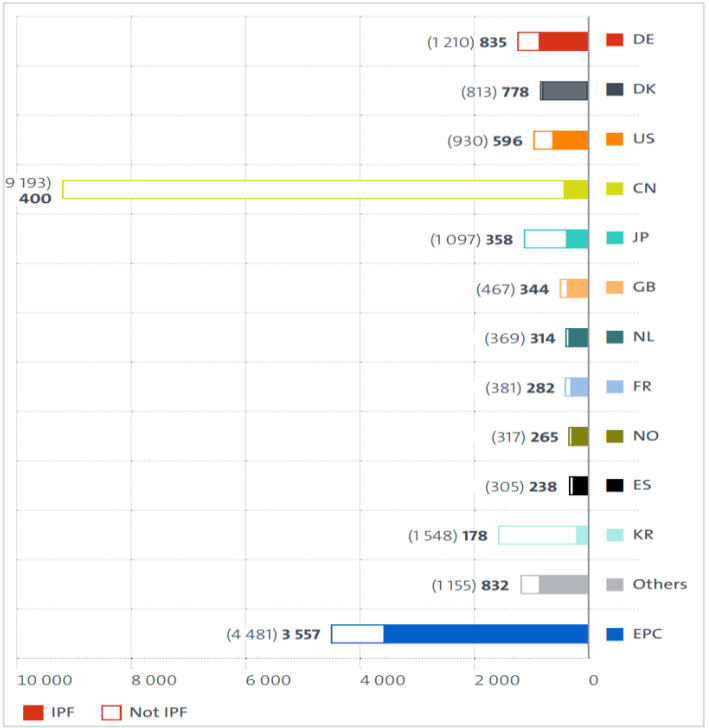


APPLICANT SECTOR
INTERNATIONAL PATENT FAMILIES





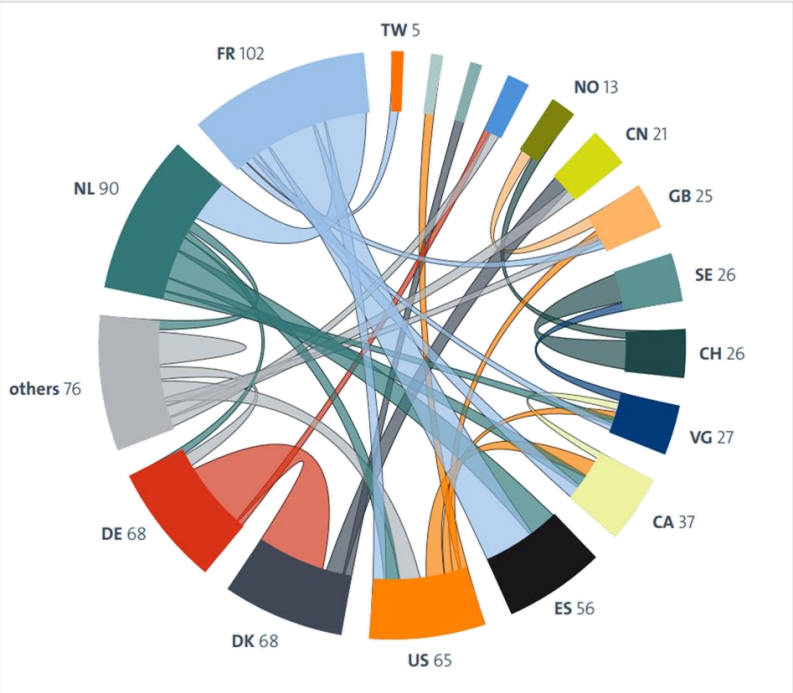
APPLICANT COUNTRIES



bold: International patent families

(non-bold): Including domestic filings

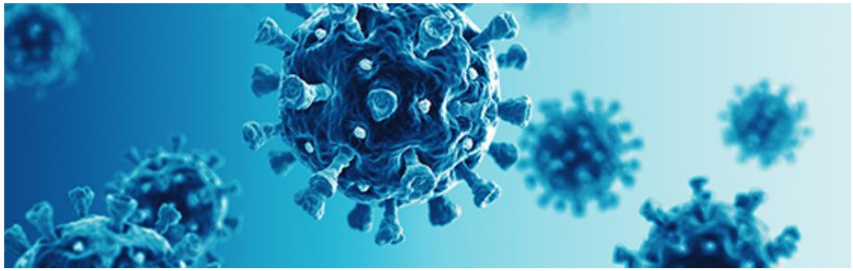
INTERNATIONAL PATENTING CO-OPERATION



- France has the highest number of patent families with international co-operation
- The United States of America has the most diverse co-operation picture, pairing with 24 countries on a total of 81 patent families
- Germany cooperates with 15 countries on a total of 79 patent families
- China is marked by co-applicant filings with mainly Denmark, Hong Kong (SAR), and Chinese Taipei

Fighting coronavirus

https://www.epo.org/news-events/in-focus/fighting-coronavirus.html.



The COVID-19 pandemic caused by the novel coronavirus SARS-CoV-2 has led to an urgent search for vaccines, treatments and technologies that can counter the spread of disease and save lives. The technical information published in patents advances human knowledge, helping researchers everywhere to understand the latest inventions.

EPO patent examiners and data analysts have compiled 276 datasets to support the important work of clinicians, scientists and engineers. Arranged into four broad themes, our charts show which countries have the most patent filings and which applicants and inventors are most prolific in the relevant fields.

THE EPO'S COVID-19 PLATFORM

Vaccines and therapeutics

The race is on to develop vaccines and pharmaceuticals that can protect against infection, relieve symptoms or cure COVID-19.

› **Explore our datasets**

Diagnostics and analytics

Testing is crucial for detecting and minimising the spread of the virus, as well as for monitoring the condition of patients.

› **Explore our datasets**

Informatics

Systems today gather vast amounts of data which can be analysed in real time to help clinicians and statisticians.

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Technologies for the new normal

New materials, devices, sensors or even smartphone apps are helping us to reduce the spread of infection and adjust to the "new normal".

› **Explore our datasets**

Inventors against coronavirus

Some of the leading scientists in vaccine research, diagnostics and therapeutics speak about their important work.

Clean energy technologies

https://www.epo.org/news-events/in-focus/clean-energy.html



In today's world, we face a multitude of energy-related issues both as a society and at an individual level. However, one issue that affects us all is climate change.

Climate change is driving innovation in clean energy. New technologies are being developed every day in the race to safeguard life on Earth and meet the climate targets set out in the European Green Deal, the UN Sustainable Development Goals (SDGs) and the Paris Agreement.

Inventors are at the forefront of this endeavour. The technical information published in patents describes the most recent technical advances, and can support researchers and innovators with making the next inventive steps.

To date, EPO patent examiners and data analysts have compiled some 60 datasets to support scientists and engineers in accessing patent information containing some of the most advanced technical knowledge on clean energy. Areas covered include offshore wind energy, smart solar systems, the optimisation of energy storage technologies and solutions for carbon-intensive industries such as steel and cement production.

UN Sustainable Development Goals

Innovation in the field of clean energies mainly supports progress towards the following UN SDGs:



*For a more comprehensive overview of green technologies, check out the EPO webpages **Green Tech in focus**.*

Renewable energy

Explore the latest ways of securing sustainable energy, from smart solar systems to advances in harvesting wind power.

› **Explore our datasets**

Carbon intensive industries

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› **Explore our datasets**

Energy storage and other enabling technologies

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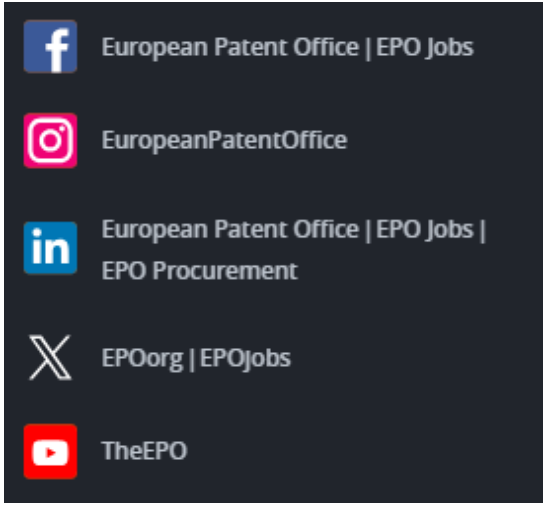
are at your disposal to monitor and analyse:

- Key technologies
- Competitors
- Knowledge flows
- Technology trends

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Thank you for your attention!