



Proposal for Seminar on “Creating and Using Patent Maps”

*(EFFECTIVELY CREATING AND USING PATENT MAPS
FOR RESEARCH AND INDUSTRY)*

Patent Mapping Methodology





About our company

The Property Co., LTD is a professional intellectual property research firm. Established in August 1996, with staff of the technology research departments, the commercial consulting department, and the legal advisement department, Property provides fine quality technological development and IP strategy support and service for our clients.

Mission-critical Tasks

- 1. The investigation and reporting of patents for legal requests**
- 2. Data mining and mapping of patents and technical documents for economic requests**



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High-precision patent research and

Home Industrial property rights research Patent Analysis Services Patent Search System Patent Translation

Intellectual property system development Intellectual property education content Intellectual Property Seminar

PRODUCTS AND SERVICES

INDUSTRIAL PROPERTY RIGHTS RESEARCH

PICK UP

— Industrial property rights research

— Patent Research

Optimizing research services

Since industrial property rights such as patents, utility models, trademarks, and designs are filed on an

RECENT SERVICE



At Property Co., LTD we continuously research and organize information derived from patent documents. For each project commissioned by corporate IP departments and other clients, we deliver a range of core services tailored to the specific workflows involved—always aiming for optimal performance and refinement.

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PRODUCTS AND SERVICES

Patent Analysis Service Overview

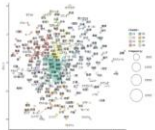
PICK UP

Patent Analysis Services


- Patent Map
- Text mining/Data mining
- Output service from commercial databases
- Data Processing Services
- Database delivery
- Creating business analysis reports

The "Patent Analysis Service" is an analysis service that uses a huge amount of patent documents as a data resource to analyze patent data according to purpose from various perspectives to obtain more advanced and strategic information. Traditionally, it has been called "patent maps" or "landscapes" because it provides an overview of the whole.

Due to the large amount of patent data, the old buzzwords that have been used are "information downsizing" → "from microanalysis to macroanalysis" → "big data visualization" → "landscape," but the "patent analysis service" referred to here is used in a broader sense.



Multidimensional Scaling Mining Examples




"Patent Landscape" is a trademark of Property Co., Ltd., filed in 2007.

PRODUCTS AND SERVICES

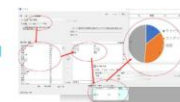
[Analysis of patent information by itemizing its contents]

When it comes to patent mapping, the most important thing to do, even if it takes time, is to analyze the technical (rights) content shown in the patent information. There are various possible approaches to this, but generally, you create categories (technical elements as items) according to the physical properties/chemical properties/electrical properties/psychological properties, etc., shown in the patent information, and then analyze them. You can also create a hierarchy based on attributes such as the problem/solution/purpose/effect, etc. There are three main ways to do this:


Substitution by classification and search formula



Itemization by morpheme words



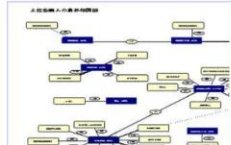
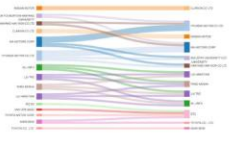
Granting by reading judgment



PRODUCTS AND SERVICES

[Related diagram analysis]

This is an analysis using a diagram that shows the relationships between interrelated elements (different from correlation analysis). Representative examples include a diagram showing the relationships between applicants based on the state of joint applications, and a diagram showing citations and cited applications.

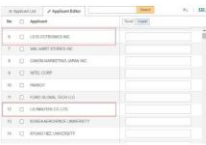

Patent Analysis Services

- Patent Map
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- Creating business analysis reports

PRODUCTS AND SERVICES

(1) Matching applicants and applicant groups

If the same applicant has different spellings due to a company name change or transfer, it is necessary to process the data as if it were the same applicant. Especially in the case of overseas patent data, there are many cases where the English spelling is different even though the applicant is the same. If these are tabulated separately, the statistics will be unclear. Also, in competitive analysis, applicants that can be considered the same are better grouped together to show the actual barrier to entry, so such processing is necessary. The figure on the left is an example of a case where such a name matching function is available on the patent search system. The 6th and 12th applicants are considered to be the same, and the same spelling is entered in the box on the right

Patent Analysis Services

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We also serve as a distributor, introducing a variety of tools—such as IP databases and mapping software used in our daily operations—through close collaboration with tool developers and manufacturers.



- **Objectives of the presentation**

- ❑ Help understand the attributes to build patent maps
 - ❑ Helps understand fundamental analysis methods
 - ❑ Helps to gain insight into the tools used when building patent maps
-

[Overview of presentation content]

- 1.The Big Picture of Patent Maps
- 2.Data Collection
- 3.Characteristics of the properties of the patent information used
- 4.Analytical method
- 5.Introduction to database and map building tools
- 6.Building a patent map using open databases



▶ The Big Picture of Patent Maps

- ▶ Use the huge data source of patents to analyze patent data from many different perspectives for each purpose, to capture high-quality strategic information.
- ▶ Patent mapping serves as a guide for technology development and business operations. In addition, if important market information is added, it is possible to identify signs of change or get clear direction suggestions.



▶ Patent Data Collection Method

- ▶ Collecting patent data is a very important step. This is not simply a step of collecting a large amount of data, but requires a search strategy to accurately refine the data to serve the proposed purpose.
- ▶ Simply searching by keywords will not be enough to search for patents. It is very important to set the search object accurately and create a reasonable search command.
- ✓ Technical field (Use patent classification code, keywords related to technical field)
- ✓ Patent category (Published patent, registered patent, expired patent)
- ✓ Region (USA, Europe, Vietnam, Japan, etc.)
- ✓ Time range (10 years ago to present, 5 years ago to present, latest invention, etc.)
- ✓ Applicant, inventor (In case it is necessary to know the competitor enterprise or the research and development organization of the invention)



Search Strategy Examples for Optimal Dataset Creation

S31	S27 OR S28 OR S29 OR S30		+	5,130				
S30	S1 AND S18 AND S15		+	1,414				
S29	S1 AND S16 AND S19 AND S22 AND S23		+	380				
S28	S1 AND S16 AND S20 AND S21		+	1,236				
S27	S1 AND S16 AND S17 AND S26		+	4,408				
S26	S24 OR S25		+	52,858,797	ELEMENT ANALYSIS"" OR "FINITE ELEMENT		+	34,190
S25	(MESH* OR MODEL* OR SIMULAT*).DSC.		+	52,696,485			+	31,911,339
S24	("CAE" OR "FEM" OR "FEA" OR "FINITE ELEMENT METHOD"" OR "FINITE ELEMENT ANALYSIS"" OR "FINITE ELEMENT SIMULATION"" OR "COMPUTER AIDED"").DSC.		+	615,777	ELEMENT ANALYSIS"" OR "FINITE ELEMENT		+	86,110
S23	(MESH* OR MODEL* OR SIMULAT*).TI,AB,CLA.		+	31,911,339			+	12,011,729
S22	("CAE" OR "FEM" OR "FEA" OR "FINITE ELEMENT METHOD"" OR "FINITE ELEMENT ANALYSIS"" OR "FINITE ELEMENT SIMULATION"" OR "COMPUTER AIDED"").AB.		+	34,190			+	4,456
S21	(G06F-030/25 OR G06F-030/27 OR G06F-030/28 OR G06F-007/48).IPC,CPC,FIPC,FCPC,FI.		+	3,336,525			+	675,900
S17			+	3,990,915			+	10,468
S16	(S5 OR S10) AND S15		+	895,874			+	1,430,830
S15	S11 OR S12 OR S13 OR S14		+	2,308,369	ERIAL*).TI,AB,CLA. OR (IMPREGNAT* NEAR3		+	462,902
S14	(REINFORC* NEAR3 FIBRE*).DSC. OR (REINFORC* NEAR3 FIBER*).DSC.		+	1,246,830	NEAR3 LAYER*).TI,AB,CLA.		+	2,367,404
S13	(FIBER* NEAR5 RESIN*).DSC. OR (FILAMENT* NEAR5 RESIN*).DSC. OR (WOVEN* NEAR5 RESIN*).DSC. OR (FIBER* NEAR5 THERMOPLASTIC*).DSC. OR (FILAMENT* NEAR5 THERMOPLASTIC*).DSC. OR (WOVEN* NEAR5 THERMOPLASTIC*).DSC.		+	1,184,996	AB,CLA.		+	560,115
S12	(FIBER NEAR5 REINFORC* NEAR5 PLASTIC*).DSC. OR (FIBER NEAR5 REINFORC* NEAR5 RESIN*).DSC.		+	560,115	TI,AB,CLA. OR (COMPOSIT* NEAR3		+	682,146
S4	(FIBER* NEAR8 RESIN*).TI,AB,CLA. OR (FILAMENT* NEAR8 RESIN*).TI,AB,CLA. OR (WOVEN* NEAR8 RESIN*).TI,AB,CLA. OR (FIBER* NEAR8 THERMOPLASTIC*).TI,AB,CLA. OR (FILAMENT* NEAR8 THERMOPLASTIC*).TI,AB,CLA. OR (WOVEN* NEAR8 THERMOPLASTIC*).TI,AB,CLA.		+	471,769			+	214,978
S3	(FIBER NEAR8 REINFORC* NEAR8 PLASTIC*).TI,AB,CLA. OR (FIBER NEAR8 REINFORC* NEAR8 RESIN*).TI,AB,CLA.		+	214,978			+	207,316
S2	("FIBER REINFORCED PLASTIC" OR "FRP" OR PREPREG OR PRE-PREG).TI,AB,CLA.		+	207,316			+	139,966,413
S1	(@PD>=19930101<=20241231 OR @FD>=19930101<=20241231 OR @DI>=19930101<=20241231 OR @IPD>=19930101<=20241231 OR @RD>=19930101<=20241231)		+	139,966,413			+	



▶ Attributes of patent information used in analysis

➤ Patent information is structured text. Therefore, if we use and display the attributes of the data below as the axis of the map, we can easily visualize the collected data.

- ✓ Distinguish ... Patent code, application code, etc.
- ✓ Time ... Priority date, invention date, filing date, publication date, patent registration date, etc.
- ✓ People ... Inventor, applicant, right owner, licensor, licensee
- ✓ Location ... Country claiming priority, address of inventor, country of filing, country of publication, country requesting application
- ✓ Content ... Patent title, abstract, scope of claims, detailed description, drawings, international classification (IPC), classification in the country of application
- ✓ Status ... Appraisal history, complaints; litigation history; ownership information
- ✓ Related Information ... Illustrative examples, similar inventions, split applications, combined applications
- ✓ Legal status ... Type of industrial property rights (Patent, utility model, industrial design, trademark), notes such as exceptions, etc.
- ✓ Other information ... Protection period, etc.



▶ Analysis method

▷ Quantitative Analysis (Statistical Chart): Displays the collected numbers on two axes, using values with the same attributes such as application quantity, application owners, etc. for analysis.



Advantages

Get objective results from numbers or data. Can be analyzed in a short time. Can clearly capture trends and movements through data displayed in numerical format.

Disadvantages

It is not possible to capture all the factors because subjective factors have been excluded.



▶ Analytical method

➤ Qualitative analysis (System analysis diagram): Is a method to capture the nature of data. The collected data on inventions is systematized, maintaining the patent code until the end for analysis.



Advantages

Can capture the specific nature of the invention, thus being able to explain and deep dive further; suitable when making business decisions or proposing strategies.

Disadvantages

Subjective factors prevail so it is difficult to have an overview of the results.
It takes time to collect and analyze data.



▷ Qualitative Analysis – Analysis with content that has been organized into categories

- ▷ **When constructing a map, it is very important to analyze the technological content disclosed in the patent information.** Patent information is classified according to the nature of disclosure and analyzed according to the following method.
- ✓ Classification and arrangement according to the search command: This is an analysis method using the IPC/CPC classification code for the technical characteristics contained in the patent information or the search command revealing the technical characteristics → There are also cases based on the features of the commercial database.
- ✓ Classification into categories according to word morphology: Is a method of arranging words taken from abstracts, scopes of protection, etc. (also called coding) into categories and then analyzing → **Can be analyzed without much effort**
- ✓ Using information obtained after reading: Is a method of evaluating the content read from patent gazettes, creating appropriate categories, then dividing and rearranging → **Meaningful data can be generated without the effort of building maps.**



▶ Analytical method

▷ Index analysis: Use patent information to organize technologies and businesses into indexes, analyze to evaluate the influence or importance of technology.



Advantages

The value criteria become clear, allowing for effective use of high-quality analysis results, providing insight into the superior creative process.

Disadvantages

Subjective factors prevail due to their dependence on assessment criteria.



▶ Introduction to database

▷ Public database: This is a database managed and operated by organizations, government agencies, or academic institutions, so anyone can access it for free. However, if you need detailed data or use the API, you may have to register for an account. There are also cases where the data provided is limited to a certain scope.

Database name	Operational organization	Scope of data	Basic features
Google Patents	Google	Inventions of countries around the world	AI-powered search, similar patent search, translation feature
ASEAN IPP	ASEAN IP	ASEAN	Dedicated to ASEAN patents, simple search feature
PATENTSCOPE	WIPO (World Intellectual Property Organization)	International PCT applications + National patents	Multilingual and full-text search of documents, with translation feature
Espacenet	EPO (European Patent Office)	European Patents + Patents from countries around the world	Advanced search feature with high accuracy, technology trend analysis
USPTO Patent DB	USPTO (United States Patent and Trademark Office)	US Patent (Industrial Design + Trademark)	US patents only, with legal status information
J- PlatPat	JPO (Japan Patent Office)	Japanese invention + Part of foreign invention	Search in Japanese, with information on legal status, search by patent classification



▶ Database Introduction

▷ Commercial database: This is a database of suppliers for commercial purposes. Many databases have additional information and data that the suppliers themselves add; have features for searching by meaning or automatic map building. However, a fee is required to use them.

Database name	Operational organization	Scope of data	Basic features
Derwent Innovation	Clarivate	Inventions of countries around the world	High-precision patent classification, citation analysis, translation feature
WIPS Global	WIPS	Inventions of countries around the world	Relatively reasonable fee, includes AI analysis feature, and competitor analysis feature
PatBase	RWS	Inventions of countries around the world	Superior map building features, data visualization
Orbit Intelligence	Questel	Inventions of countries around the world	Comprehensive patent analysis, featuring AI-generated reports
TotalPatent One	LexisNexis	Inventions of countries around the world	Strong in legal analysis, full text search, superior filters



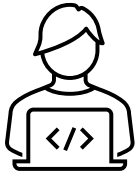
▶ Introducing the map building tool

▷ Free map building tools: Although it requires manual work to extract patent data and visualize it, these are free tools that provide flexible analysis and easy integration of other data besides patent data.

Excel, Python (Open source programming language)

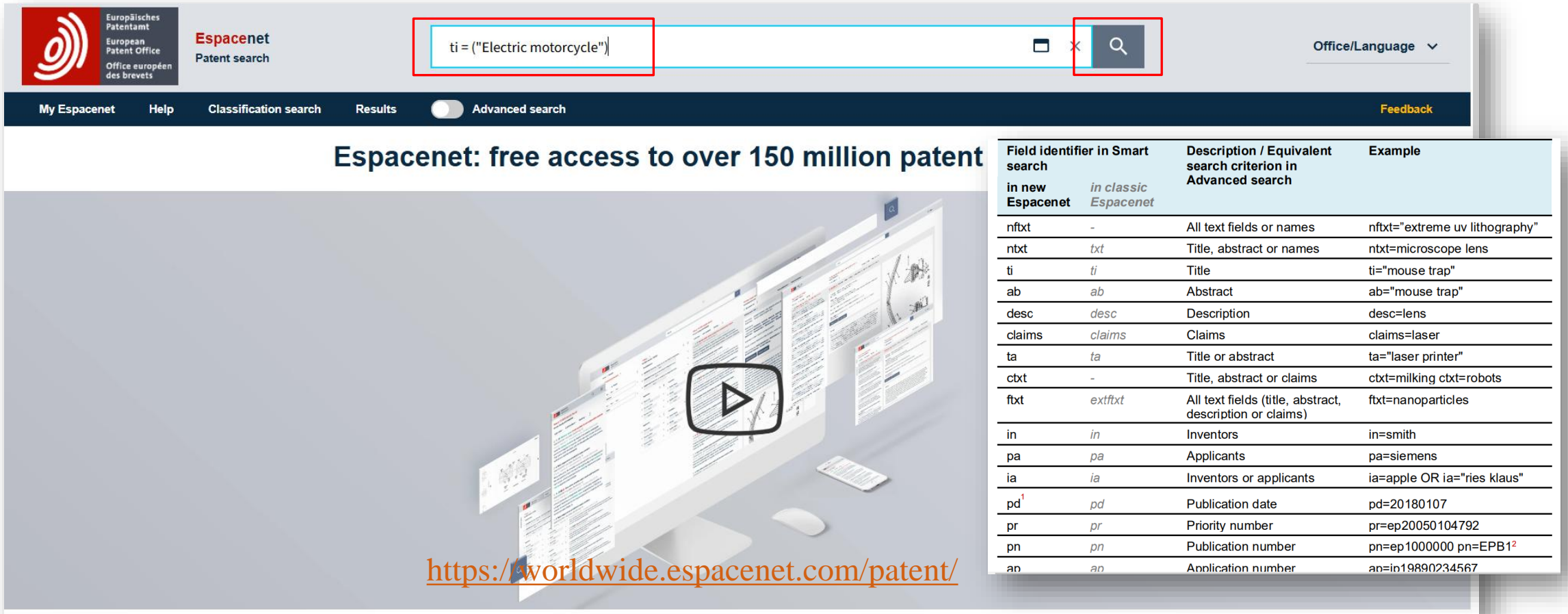
▷ Commercial mapping tools: Many tools allow for a full range of steps, from analyzing data extracted from databases to visualizing and generating reports. In particular, the automatic analysis feature linked to many patent search databases is the strength of these tools. However, a fee is required to use them.

Derwent Innovation(Clarivate) 、 WIPS Globl (WIPS) 、 PatBase (RWS) 、 Orbit Intelligence (Questel) 、 TotalPatent One (LexisNexis) 、 PatSnap (PatSnap)



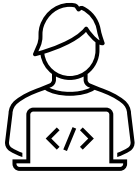
▶ Building a patent map using Espacenet and Excel

- Go to Espacenet, type the search command into the search window and perform the search.



The screenshot shows the Espacenet website interface. At the top, there is a search bar with the text "ti = ('Electric motorcycle')". To the right of the search bar is a magnifying glass icon. Below the search bar, there is a navigation bar with links: "My Espacenet", "Help", "Classification search", "Results", and "Advanced search". The main heading reads "Espacenet: free access to over 150 million patent". Below this heading is a large image of a computer monitor displaying patent search results, with a play button icon overlaid. At the bottom of the image, the URL <https://worldwide.espacenet.com/patent/> is displayed.

Field identifier in Smart search	Description / Equivalent search criterion in Advanced search	Example
nftxt	All text fields or names	nftxt="extreme uv lithography"
nbxt	Title, abstract or names	nbxt="microscope lens"
ti	Title	ti="mouse trap"
ab	Abstract	ab="mouse trap"
desc	Description	desc=lens
claims	Claims	claims=laser
ta	Title or abstract	ta="laser printer"
ctxt	Title, abstract or claims	ctxt=milking ctxt=robots
ftxt	All text fields (title, abstract, description or claims)	ftxt=nanoparticles
in	Inventors	in=smith
pa	Applicants	pa=siemens
ia	Inventors or applicants	ia=apple OR ia="ries klaus"
pd ¹	Publication date	pd=20180107
pr	Priority number	pr=ep20050104792
pn	Publication number	pn=ep1000000 pn=EPB1 ²
an	Application number	an=in19890234567



- Turn on the “Filter” feature on the search results display screen, click on “Graph overview”.

Esacenet Patent search

ti = ("Electric motorcycle")

Office/Language

My Espacenet Help Classification search Results Advanced search **Filters** Popup tips Feedback

Home > Results

Family Publication

Countries (family) Languages (family) Earliest publication date (family)

Family

Earliest priority date IPC main groups IPC subgroups CPC main groups CPC subgroups CPC assigning offices Applicants Inventors

Publication

2 258 results found

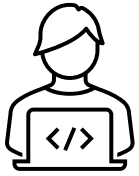
List view Text only List content All Sort by Relevance

☐ (0 patents selected) Select the first 20 results

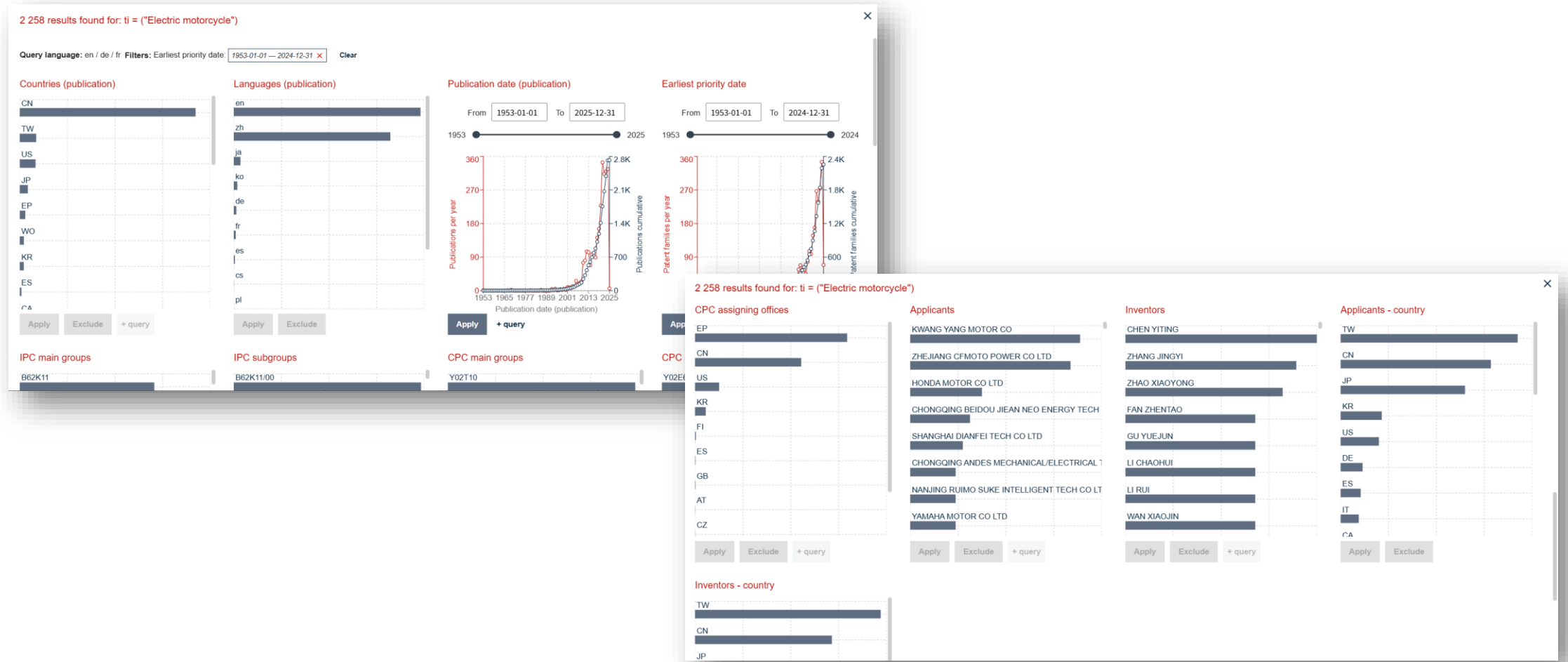
☐ 1. **ELECTRIC MOTORCYCLE**
US2010078237A1 (B2) • 2010-04-01 • HONDA MOTOR CO LTD [JP]
Earliest priority: 2008-09-30 • Earliest publication: 2010-03-31
An electric motorcycle is provided such that even if a power drive unit is mounted to a swing arm, it is difficult for a load to be applied to wiring connected to the power drive unit. In an electric motorcycle in which a PDU and a running-purpose power-generating motor are attached to a swing arm turning around a pivot shaft, and electricity from batteries

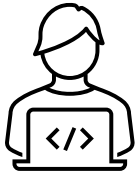
☐ 2. **Electric Motorcycle**
US2013233633A1 (B2) • 2013-09-12 • MATSUDA YOSHIMOTO [JP]
Earliest priority: 2010-11-18 • Earliest publication: 2012-05-24
An electric motorcycle according to the present invention includes a body frame having a head pipe supporting a steering shaft and a frame portion extending substantially rearward from the head pipe, an electric motor generating traveling power to be transmitted to a driving wheel, and an electric motor case housing the electric motor, wherein the

☐ 3. **Electric Motorcycle**
US2013270025A1 (B2) • 2013-10-17 • MATSUDA YOSHIMOTO [JP]
Earliest priority: 2010-12-24 • Earliest publication: 2012-06-28
An electric motorcycle of the present invention comprises: a battery for storing electric power; an inverter for generating an AC current by the electric power supplied from the battery to the inverter; a motor for generating driving power by the AC current generated by the inverter and supplied to the motor; a wiring member for electrically connecting the inverter



- There are 13 types of maps displayed as dashboards.





- Turn on the “Filter” feature on the search results display screen, click on “Download_filter”.

Espacenet Patent search

ti = ("Electric motorcycle")

Office/Language

My Espacenet Help Classification search Results

Advanced search Filters Pop up tips

Home > Results

Family Publication

Countries (family)

Languages (family)

Earliest publication date (family)

Family

Earliest priority date

IPC main groups

IPC subgroups

CPC main groups

CPC subgroups

CPC assigning offices

Applicants

Inventors

Publication

2 258 results found

List view List content Sort by

Download ext only All Relevance

(0 patents selected) Select the first 20 results

1. **ELECTRIC MOTORCYCLE**

US2010078237A1 (B2) • 2010-04-01 • HONDA MOTOR CO LTD [JP]

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Earliest priority: 2010-11-18 • Earliest publication: 2012-05-24

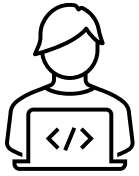
An electric motorcycle according to the present invention includes a body frame having a head pipe supporting a steering shaft and a frame portion extending substantially rearward from the head pipe, an electric motor generating traveling power to be transmitted to a driving wheel, and an electric motor case housing the electric motor, wherein the

3. **Electric Motorcycle**

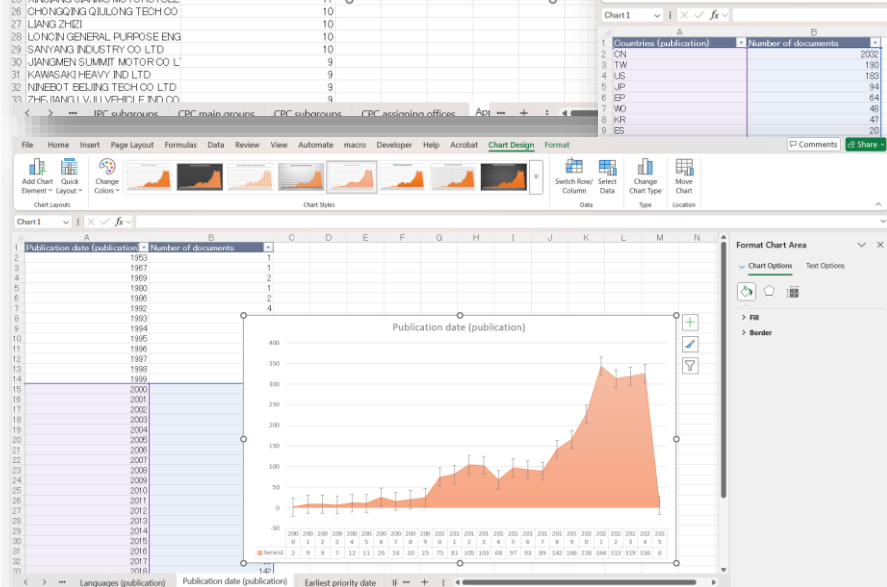
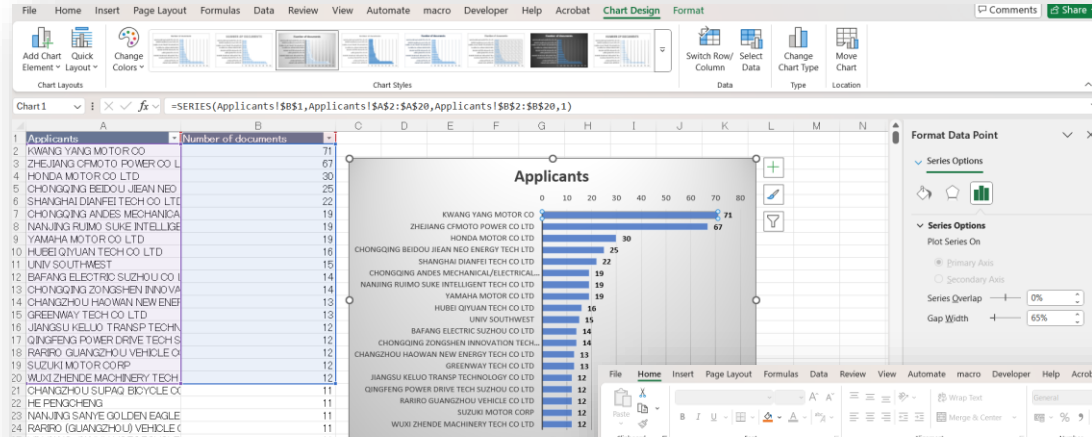
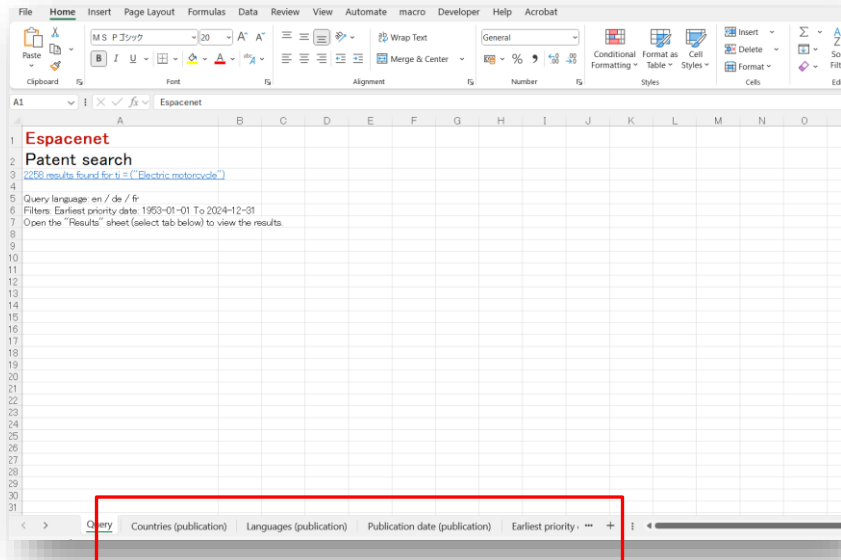
US2013270025A1 (B2) • 2013-10-17 • MATSUDA YOSHIMOTO [JP]

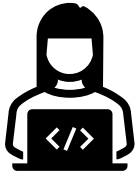
Earliest priority: 2010-12-24 • Earliest publication: 2012-06-28

An electric motorcycle of the present invention comprises: a battery for storing electric power; an inverter for generating an AC current by the electric power supplied from the battery to the inverter; a motor for generating driving power by the AC current generated by the inverter and supplied to the motor; a wiring member for electrically connecting the inverter



- Data for 13 map types are downloaded in each tab. Use Excel's charting feature to build patent maps.





▶ Building a patent map using PATENTSCOPE

- Go to PATENTSCOPE, type the search command into the search window and perform the search.

WIPO

Help English IP Portal login

Home > PATENTSCOPE > Search

Feedback Search Browse Tools Settings

PATENTSCOPE Simple Search

Using PATENTSCOPE you can search 121.0 million patent documents including 5.1 million published international patent applications (PCT). [Detailed coverage information](#)

PCT publication 06/2025 (February 6, 2025) is now available [here](#). The next PCT publication 07/2025 is scheduled for Thursday, February 13, 2025. [More](#)

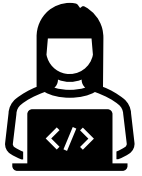
Check out the [latest PATENTSCOPE news and features](#)

PATENTSCOPE Live Chat : every Monday from 21:00 to 01:00 (JST)

Field	Search terms...
Front Page	EN_T1:("Electric motorcycle") AND PD:[20140101 TO 20241231]

Query Examples

<https://patentscope2.wipo.int/search/en/search.jsf>



Click on the chart icon on the search results screen and select “Charts”.

WIPO

Home > PATENTSCOPE > Search

Feedback Search ▼ Browse ▼ Tools ▼ Settings

FP:(EN_TI:("Electric motorcycle") AND PD:[20140101 TO 20241231])

169 results Offices all Languages en Stemming true Single Family Member false Include NPL false

Machine translation ▼

Analysis

Filters Charts

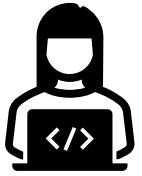
Countries	Applicants	Inventors	IPC code	Publication Dates			
China	56	ZHEJIANG CFMOTO POWER CO LTD	22	CHEN ZHIYONG 17	B62J 74	2016	3
PCT	32	KWANG YANG MOTOR CO LTD	18	CUI YONGGANG 17	B62K 74	2017	3
European Patent Office	24	DAMON MOTORS INC	8	LIAO KE 16	B60L 61	2018	8
United States of America	22	HONDA MOTOR CO LTD	8	ZHENG XIAODONG 10	B62M 59	2019	18
Japan	14	VERGE MOTORCYCLES OY	6	JIN YUGIANG 8	B60K 31	2020	14
India	8	ENGINES ENGINEERING SRL	5	LI KUN 7	H01M 21	2021	34
Canada	4	GUANGYANG IND CO LTD	5	DORRESTEYN, DEREK 6	H02K 16	2022	32
Australia	1	GUANGYANG INDUSTRIAL SHARE LIMITED COMPANY	5	MA CHENGXU 5	B62D 7	2023	31
Czech Republic	1	ROBERT BOSCH GMBH	5	CHEN YI ZUO 4	H02J 5	2024	24
Finland	1	BAYERISCHE MOTOREN WERKE AG	4	GHERARDI GIOVANNI 4	B60T 4	2025	2

EP - 11.09.2024

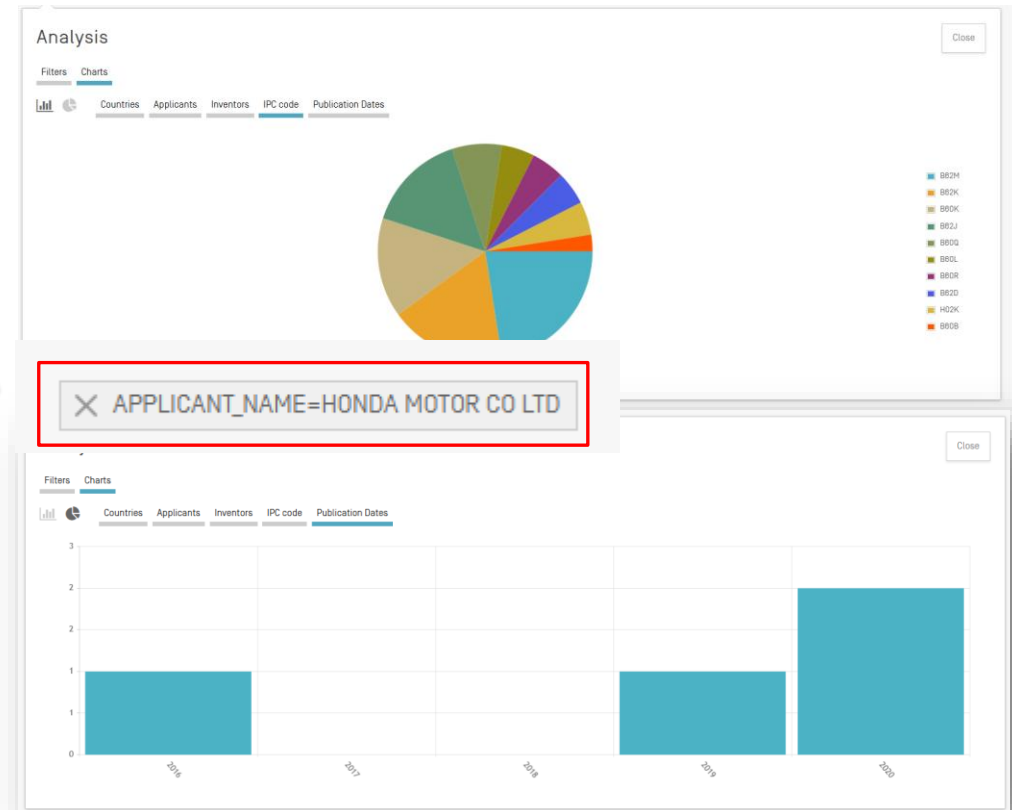
a battery case. The electric motor and the battery case are coupled more electrical connections to the electric motor.

JP - 20.09.2024

y pack with a battery case. The electric motor and the battery case box for one or more electrical connections to the electric motor.



- It is possible to both filter search results and create charts.



- No need to download chart data, can copy for use

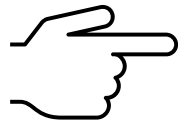


[Summary of presentation]

Above are the basic concepts and procedures for building a patent map.

In this section, you have understood the method that is the foundation of analysis. To be able to apply it in practice, it is necessary to be aware of data collection and arrangement.

You have also learned the method of data collection to serve the analysis of technological content contained in patent information.



• [Next Step]

Deepen analysis based on real patent maps




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