GUIDE
TO **TECHNOLOGY**
DATABASES

WIPO
WORLD
INTELLECTUAL PROPERTY
ORGANIZATION

GUIDE TO TECHNOLOGY DATABASES

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## 1.	INTRODUCTION AND SCOPE OF THE GUIDE

1.	During the first session of the Committee on Development and Intellectual Property (CDIP), held from March 3 to 7, 2008, Member States of the World Intellectual Property Organization (WIPO) approved the working document CDIP/1/3[1] containing 45 recommendations for the implementation of WIPO's Development Agenda. These recommendations were subsequently adopted by the General Assemblies of WIPO.[2]

2.	Within Recommendation 8 of the Development Agenda, the Member States:

"Request WIPO to develop agreements with research institutions and with private enterprises with a view to facilitating the national offices of developing countries, especially LDCs, as well as their regional and sub-regional intellectual property organizations to access specialized databases for the purposes of patent searches."[3]

3.	During its second session in July 2008, the CDIP approved the document CDIP/2/INF/3 on "Terms of Reference for a Study Paper regarding Recommendation 8" defining the scope of the paper and, in particular, focusing on: a needs analysis; a review of specialized patent databases; a review of specialized non-patent literature (NPL) databases; a comparative analysis between the added value of commercial databases with respect to free-of-charge databases; and further possible issues and recommendations.

4.	The current Guide stems from the work carried out for the Study Paper, containing in particular further detailed elements of technology databases considered too technical for the more general and analytical Study Paper requested by the CDIP. While the Study Paper provides a more general overview of technology databases, as well as a needs analysis and recommendations for facilitating access for developing countries, the present Guide is a detailed technical paper which is aimed at industrial property office examiners and users in general to assist them in identifying the correct database and using the possible functionalities and tools offered by specific databases.

5.	Therefore, the current Guide examines a selection of commercial and non-commercial database services considered representative of the broader population of existing services in order to illustrate types and combinations of features available through these services.

6.	The Guide examines only databases available online to the public. Internal search systems such as the European Patent Office's EPOQUE system and the United States Patent and Trademark Office's Examiner's Automated Search Tool (EAST), Web-based Examiner Search Tool (WEST), and Foreign Patent Access System (FPAS), as well as national registries containing additional information such as legal status, are excluded from consideration as they are designed and developed for internal use.

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[1] http://www.wipo.int/edocs/mdocs/mdocs/en/cdip_1/cdip_1_3.doc
[2] http://www.wipo.int/edocs/mdocs/govbody/en/a_43/a_43_16-main1.pdf
[3] Annex A of A/43/16. See: http://www.wipo.int/edocs/mdocs/govbody/en/a_43/a_43_16-main1.pdf

2. REVIEW OF PATENT DATABASE SERVICES

(a) Overview

7. Patent database services are commonly designed to enable various types of patent search, depending on the user's specific needs, including novelty or inventive step (non-obviousness), validity, infringement, freedom-to-operate or clearance, and state of the art searches. Database services differ in terms of geographic and historical coverage, as well as in the type of documents available (whether patent applications, granted patents or utility models) and the elements of these documents that are accessible and searchable (whether titles, abstracts, description, claims, or other elements). In addition, many databases offer various tools designed to facilitate the retrieval of relevant search results as well as the visualization and analysis of these results.

8. With regard to completeness and a better overall assessment of user needs, the present Guide provides an overview of all patent databases which are available to the public but exclude patent databases available only for internal use by IP Offices. The Guide distinguishes between three types of patent databases, namely public sector databases (i.e. those provided by national and regional patent offices), free-of-charge private sector databases, and fee-based private sector databases. Public sector databases have been selected from those provided by offices with the highest patenting activity, since these databases can be expected to represent the largest patent collections. Private sector databases are drawn from a group of the most widely known and commonly used databases, as indicated, e.g., by the responses received to Circular C.N 3024.

9. Certain fields of technology are especially relevant to the research and development activities of developing countries, notably pharmaceuticals and organic chemistry, as evidenced by patent filing activity in these countries. As a result, special weight was given in the selection of database services to be reviewed to those services featuring tools designed with these fields in mind.

10. Specifically, the Guide reviews the following databases:

Public Sector Database Services provided by WIPO and National and Regional Offices[4]	
World Intellectual Property Organization	http://www.wipo.int/patentscope/search/en *(PCT + national)*
Australia	http://www.ipaustralia.gov.au/patents/search_index.htm
Canada	http://patents1.ic.gc.ca
China	http://www.sipo.gov.cn/sipo2008/zljs *(Chinese language)* http://218.240.13.210/sipo_EN *(English language)*
Germany	http://depatisnet.dpma.de/DepatisNet
United Kingdom	http://www.ipo.gov.uk/types/patent/p-os/p-find.htm
Hong Kong, SAR	http://ipsearch.ipd.gov.hk/patent
India	http://www.patentoffice.nic.in/PatentSearch/ipirs_index.htm
Israel	http://www.ilpatsearch.justice.gov.il *(Hebrew language)* http://www.ilpatsearch.justice.gov.il/UI *(English language)*
Japan	http://www.ipdl.inpit.go.jp *(Japanese language)* http://www.ipdl.inpit.go.jp/homepg_e.ipdl *(English language)*
Republic of Korea	http://patent2.kipris.or.kr/pat *(Korean language)* http://patent2.kipris.or.kr/pateng *(English language)*
New Zealand	http://www.iponz.govt.nz/cms/banner_template/IPPATENT
United States of America	http://patft.uspto.gov
Eurasian Patent Office	http://www.eapatis.com *(Russian language)* http://www.eapatis.com/ensearch *(English language)*

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[4] For further databases made available by national and regional offices, see:
http://www.wipo.int/patentscope/en/search/national_databases.html

European Patent Office	http://www.espacenet.com/access
Free-of-charge Private Sector Database Services	
Google Patents (Google)	http://www.google.com/patents
PatentLens (Cambia)	http://www.patentlens.net
Fee-based Private Sector Database Services	
Orbit.com (Questel)	http://www.orbit.com
PatBase/PatBaseXpress (Minesoft)	http://www.patbase.com *(PatBase)*
	http://www.patbaseexpress.com *(PatBaseXpress)*
STN (CAS/FIZ Karlsruhe)	http://www.stn-international.de
Thomson Innovation (Thomson Reuters)	http://www.thomsoninnovation.com
Total Patent (LexisNexis)	http://www.lexisnexis.com/totalpatent
WIPS Global (WIPS)	http://www.wipsglobal.com

11.   For the purposes of the present Guide, commercial database services are organized alphabetically according to the name of the service, while database services provided by national and regional offices are organized alphabetically according to their recommended two-letter code under WIPO Standard ST.3, with national offices and regional offices indicated separately.

12.   The landscape of patent and non-patent databases is constantly changing, with new services coming onto the market and existing services being expanded, merged or discontinued. Notable examples of this transformation include Delphion and Micropatent, provided by Thomson Reuters, whose features have been incorporated into Thomson Innovation, the company's flagship product, and which are therefore in the process of being phased out. Other examples include PatAnalyst from Jouve, which is being maintained for existing subscribers but for which no new subscriptions are accepted, and Questel's QPAT, which will be integrated into the Orbit portal in the future. A further dimension for change lies in the pricing of services: Free-of-charge services frequently transition to paid services, as in the case of Delphion, PatentCafe, and Surechem.

(b)   Structure and methodology

13.   The most basic features of patent database services include data coverage and search tools and functionalities. These features are key to determining the most appropriate databases for a given task and can vary widely from one service to the next.

14.   Language is also an important factor in determining the usability of patent database services. This factor is reflected in terms of the languages in which system interfaces are available as well as the languages supported for searching and related features such as cross-lingual search functionalities and translation tools.

15.   For each database service, an overview is provided of key features, highlighting particular strengths and weaknesses of the service. In addition, a summary table is provided as a quick reference guide and to facilitate a broad comparison between different services. The features included in the summary tables include:

(i)   Coverage

16.   **Collections**: Database services may cover patent collections of one or more different IPOs. The IPOs whose patent collections are covered by a particular database service are indicated using two-letter codes as set forth in WIPO Standard ST.3. Specific datasets are also indicated, including the INPADOC/DOCDB bibliographic dataset and DWPI bibliographic dataset, described in greater detail below. The types of patent documents available within each collection are indicated using a uniform system of document kind codes: "A" for applications, "B" for granted patents, and "U" for utility models. Patent collections and associated types of patent documents are further grouped according to the parts of available documents that are searchable using a database service by full-text or bibliographic data.

17.   The term "bibliographic data" comprises data appearing on the front page of a patent document, such as document identification numbers, filing and publication dates, priority data, patent classification

information, and other concise data relating to the technical content of the document or of the entry in the official publication.[5] "Full-text" further includes claims and descriptions.

18.   Historical coverage of patent collections (i.e. the dates for which some or all patent documents in a collection are available) may vary among database services but is not documented in the summary tables. As a result, the detailed coverage tables of the database providers, as indicated in the related footnotes, should be consulted to ensure an accurate comparison of the coverage offered by database services.

19.   **Classifications**: Patent/utility model applications are classified by the patent offices depending on the classification system used into specific groups, subgroups, classes and/or subclasses representing different fields of technology and referred to by classification symbols, e.g. B62K19/20 (bicycle frame welded joints). Retrieving pertinent results during a patent search is improved by using classification symbols within a search strategy.

20.   The International Patent Classification (IPC) is administered by WIPO and used by major patent offices around the world. Other patent classification systems include the European Patent Office's European Classification (ECLA), the U.S. Patent Classification (USPC or PCL), the Japanese Patent Office's classification F-I and F-terms, as well as the German Patent and Trademark Office's DEKLA classification.

21.   Apart from the classification systems developed by specific patent offices, the Derwent World Patent Index (DWPI) is also of interest, as its data consists of compiled, re-written and translated titles and abstracts. The DPWI contains specific records of the patent and its family members, the former comprising a compiled title, abstract, special chemical or electrical classification, additional indexing, while the latter including original data such as application and priority data (dates and document numbers), applicant/inventor names and addresses, original titles, abstracts and the first claim. Indexing is also added, either as a Chemical Patents Index (CPI), Electrical Patents Index (EPI) or Engineering Patents Index (EngPI) with corresponding manual codes applied.

(ii)   Search options

22.   A **number search** can be carried out by entering the application/priority/publication number or any other number indicated; a **name search** by entering, e.g. the inventor/assignee/applicant/patent agent/legal representative; while a **citation** can also be searched (patents citing a specific patent are referred to as a backward citation, while those cited by it, as a forward citation).

23.   **Search limitation** options refer to the search being limited to a certain date/classification/patent collection/country etc. Cross-content search allow simultaneous searching within patent and non-patent content and similarity searches use classification codes to identify similar patents.

24.   The use of so-called "**operators**" is common to indicate to the search engine in what way the entered search keywords or classification symbols should be combined or excluded from the search results; these operators may vary in the way they are used in different databases; the most commonly used operators are the so-called "**Boolean operators**":

AND   →   all specified terms must be included (e.g. rubber AND ball)

OR   →   either specific term or both must be included (e.g. organic OR biological)

ANDNOT, **NOT**   →   the preceding term must be included but the following must not be included (e.g. paint ANDNOT red)

XOR   →   either specified term must be included but not both (e.g. software XOR hardware)

+   →   the following term must be included (e.g. +semiconductor)

-   →   the following term may not be included, i.e. excluded (e.g. -silicon)

25.   Furthermore, so-called "**proximity operators**" can be used to combine search terms if they fall within a certain range of text units from each other:

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[5] http://www.wipo.int/pctdb/en/glossary.jsp#biblio

NEAR →   the second term must be within a certain number of words from the first, either preceding or following the first term (e.g. metal NEAR cutting)

ADJ →   the second term must be within a certain number of words from the first, following the first term (e.g. plant ADJ matter)

26.   As indicated above, proximity operators may be unordered or ordered. Ordered proximity operators require that the search terms after the operator must be found after the first term in retrieved records (e.g. "plant ADJ matter" will retrieve "plant matter" or "plant organic matter" but not "matter concerning plants").

27.   In certain cases, proximity operators may be user-definable, which is to say that the range within which search terms must be found from one another can be specified. For example, depending on the particular database service, NEAR:2 or ADJ2 might specify that search terms would have to be found within two text units from one another. User-definable proximity operators are written, e.g. as NEAR:n or ADJn, where n represents the number of terms within which the given search terms must be found.

28.   Search terms or **phrases** can also be commonly combined using quotation marks (e.g. "air conditioning unit"). The combination of terms surrounded by the quotation marks will be found in the search results exactly as they are entered. Given the prevalence of this feature among database services, it is not specifically noted in the reviews of specific services.

29.   Related terms can be searched using so-called "**wildcard operators**" (such as "*" and "?") as a substitute for characters (e.g. electr* will retrieve electrical, electricity, electrician, etc.). Wildcard operators, also referred to as truncation symbols, are added after the shared primary root or stem of the related terms, either in the end of a word or part of a word (right truncation), at the beginning of a word (left truncation) or in the middle of a word (internal truncation). Some database services permit simultaneous left and right truncation (SLART). Specific wildcard operators can substitute different numbers of characters, depending on the search service in question (e.g. "*" might represent an unlimited number of characters, while "?" might represent 1 character). In some cases, wildcard operators can be stacked, which is to say that an operator can be used repeatedly to represent multiples of the characters substituted (e.g. if "?" represents one character, "???" would represent three characters).

30.   In respect of **chemical searches** in particular, databases are indicated which offer a chemical structure search along with a drawing and/or drawing importing tool.

(iii)   Languages

31.   With regard to language, the following language features are reviewed: the database's offered interface languages, which is important for users to understand search fields and criteria, a multilingual search option, as well as any translation tools offered by the database/search engine.

(iv)   Results and display/visualization formats

32.   Further features which were reviewed relate to the search results and more precisely whether **priority details** are included, if the search results may be **extracted into documents** and if so in which formats, as well as whether **legal status** information is provided. Moreover, it was investigated how **images or drawings** in the patent document are displayed and whether a **statistical or graphical presentation** of search results is among the features offered by a database.

(c)   Database content sets

33.   The following content sets are identified as important collections of actual data as opposed to database services within which they can be included, e.g. INPADOC legal status data can be found in many database services.

(i)   INPADOCDB bibliographic data

34.   The INPADOCDB dataset (commonly referred to simply as INPADOC) is compiled by the European Patent Office (EPO) and included in the content of numerous database services, notably the EPO's esp@cenet search service and German Patent and Trademark Office's DepatisNet search service. It comprises a broad range of bibliographic data from patent offices around the world, though completeness of coverage varies greatly among offices.[6] The dataset also forms the basis for the identification of INPADOC patent families, groups of patent documents related by one or more priority claims.

(ii)   INPADOC legal status data

35.   The INPADOC legal status data set is compiled by the European Patent Office (EPO) and is the most common source of legal status information available through patent database services. A wide range of patent authorities (currently 56 in total, including the former German Democratic Republic) are covered by the data set, with different types of legal status information provided for each specific authority. This information includes, for certain authorities, national phase entry data for European patent applications and PCT applications, corrections, invalidations, lapses and expiries, and assignments.[7]

(iii)   Derwent World Patent Index

36.   The Derwent World Patent Index (DWPI) is maintained by Thomson Reuters and includes value-added bibliographic data, notably additional classification (DWPI Classification) as well as rewritten titles and abstracts.

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[6] For complete INPADOCDB bibliographic data coverage information, see:
http://documents.epo.org/projects/babylon/rawdata.nsf/0/71300EF4F56AF961C125770E0046F3DE/$File/PFS_1017.xls
[7] For complete INPADOC legal status coverage information, see:
http://documents.epo.org/projects/babylon/rawdata.nsf/0/81D7A52B8CEC65C1C12577230040808D/$File/PRS_1020.xls

(d) Fee-based commercial databases

(i) Orbit.com

37.   **Orbit.com** is a web-based commercial searchable patent database made available by Questel, with full-text coverage of the PCT, Chinese, European (EP), Japanese, and US collections as well as a number of other, mainly European, collections.[8] Bibliographic data is available for the Korean collection. Patent documents are grouped into database records according to the proprietary FamPat patent family scheme. Thus, while records represent a single invention, they can be accessed using the data contained in any of the patent documents belonging to the associated FamPat patent family. For example, if a record includes both a European and US patent filing, it could be retrieved using either ECLA (classification used for European patent documents) or USPC (classification used for US patent documents). While original patent classifications are retained for all patent documents, application and priority numbers for all patent documents are standardized using the Questel Orbit format. To assist users in entering patent numbers in the correct format, a **patent number formatting assistant** and **automatic patent number identification tool** ("Patent Number Wizard") is provided. Legal status information is available for the Japanese collection as well as for certain other collections through the INPADOC legal status dataset.

38.   Several different search interfaces are provided for Orbit.com, including basic Express and Advanced, classification ("Similarities Search"), Family and Extended Family, and Citation search interfaces. The structured **Express Search interface** allows the use of basic Boolean and wildcard operators and searching by field in the full-text, assignee/inventor, and number fields only, while the **Advanced Search interface**, which includes both command-line and structured search elements, permits searching by field in the full range of available fields as well as the use of proximity operators. Orbit.com supports simultaneous left and right truncation (SLART) as well as internal truncation. The Advanced Search interface also includes the possibility of **cross-language semantic search** for English, French, and German (i.e., search terms entered in any one of these languages can be searched in multiple variations in all three languages), though use of Boolean, wildcard, and proximity operators is only possible on the query generated when this option is selected. Results from both Express and Advanced searches can include **highlighting of search terms** according to user-definable color schemes ("keyword-in-context", or "KWIC").

39.   The **Similarity Search interface** permits searching inventions similar to a given patent document according to ECLA patent classification, or IPC patent classification if ECLA is not present, and includes cited and citing documents. Patent collections to be included in the search can also be selected. The **Family and Extended Family search interfaces** allow the identification of patent families related to a particular patent document based on the proprietary FamPat and extended INPADOC datasets, respectively. FamPat patent families are smaller in size than extended INPADOC patent families, since they group only those documents sharing all priority claims rather than all documents sharing at least a single priority claim.

40.   Any search, including Family and Extended Family searches may include **legal status information** as well as citations, the latter of which may be presented in a **graphical citation display** with priority data and timelines. Graphical views may be exported in PDF or GIF format. The Citations search interface permits the identification of forward citations (i.e., citing documents) for patent documents using application, priority, or publication numbers or keywords (with the option of cross-language semantic search) as well as graphical presentation of citations. Search results for this interface include both **patent and non-patent literature citations**.

41.   **Search histories** may be viewed and stored to user profiles, and **search alerts** set up to track new records meeting criteria for a search previously carried out as well as for changes in legal status.

42.   Tools available for presenting and analyzing search results include the Family Citation and PatCitation tools and the ANALYZE tool. The Family Citation and PatCitation tools allow users to create **graphical representation of the various family/citation relationships** (by date, inventorship or ECLA/IPC

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[8] For more detailed information with regards to QPAT bibliographic and full text coverage please consult http://www.questel.com/customersupport/Coverage_and_Updates_FullText.htm and http://www.questel.com/customersupport/Coverage_and_Updates.htm

classification) – with citation relevance indicators in international search reports (X, Y, A). The ANALYZE tool identifies the **top assignees, ECLA, US, and IPC classes** among 500 randomly chosen search records (if more than 500 search results are available). It also allows the expansion of a results set to cited and/or citing documents. Lastly, the Statistics module allows the statistical analysis and graphical display of up to 15 000 records.

43.   A number of additional tools are offered within Orbit.com that are designed to enable **workfile management** ("Your Workfiles"/"PatentExaminer") and provide **search alerts** and **legal status alerts** ("PatLegalMonitor").

44.   Related services: **PatCitation** provides the option of carrying out graphical citation analysis using data generated through Orbit.com.

45.   Added value features:

–   Proprietary patent family data ("FamPat")

–   Extraction tool for specific content information (object, advantages, independent claims) from English full-text

–   Assignee/applicant and inventor index viewer ("Browse Index")

–   Hierarchical corporate assignee/applicant index for US companies

–   Patent number formatting assistant ("Patent Number Wizard")

–   Automatic patent number recognition tool ("Patent Number Wizard")

–   Cross-language semantic search

–   Machine-assisted English translation of Chinese full-text records

–   Customized search term highlighting in results ("keyword-in-context", "KWIC")

–   Identification of top assignees and top classifications ("ANALYZE" tool)

–   Identification of most cited and citing patents ("ANALYZE" tool)

–   Graphical citation/family viewer ("Family citation")

Coverage	
Collections[9]	*Full-text:* AT-A, -B and -U (DE), BE-A (OR, DE, FR, NL), BR-A and -U (PT, T/EN), CH-A and -B(OR, DE, FR, IT, T/EN), CL-A and -U (ES, T/EN), CN-A -B and -U (OR, T/EN), DE-A, B, -T -U (DE), DK- B (DK, T/EN), EP-A and -B (OR & T/EN), ES-A and -U (ES, T/EN), FI-B (FI, T/EN), FR-A (FR), IN-A and -B (EN), JP-A, -B and -U (OR, T/EN), RU-A, -B and –U (RU, T/EN) SE-B (SE, T/EN), UK-A, US-A and –B, WO/PCT-A (OR & T/EN). *Bibliographic data*[10]: KR-A (T/EN abstracts)
NPL	N/A
Classifications	ECLA, IPC, ICO, JP(FI/F-terms), NL, UK, USPC
Search options	
Number search	Application, publication, patent, priority
Patent families	Extended INPADOC family, FamPat, PlusPat
Name	Company, inventor, assignee
Abstracts	Yes
Citations	Forward and backward (patent)

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[9] For full coverage information, see: http://www.questel.com/customersupport/Coverage_and_Updates_FullText.htm
[10] http://www.questel.com/customersupport/Coverage_and_Updates.htm

Limitations	Date, search field (only claims, title, description), countries and classifications, but also through command line interface
Operators	*Boolean:* AND, OR, NOT *Wildcard (SLART and internal):* ? (0-1 char.), # (1 char.), + (unlimited) *Proximity:* F ("field"), P ("paragraph"), S ("sentence" or "subfield"), Dn (unordered, user-definable), Wn (ordered, user-definable)
Special search tools	– Classification concordance tool (PCL/ECLA) – Applicant name index – Hierarchical corporate applicant/assignee index – Similarities search – Chemical structure search (Merged Markush Service)
Language	
Interface language	DE, EN, FR, JP
Multilingual search	Cross-language semantic search (DE-EN-FR)
Translation features	– Full-text (machine) into EN (CN, DE, ES, FR, GB) – Bibliographic data (human) into EN (CA, JP, KR, TW, WO/PCT) – Abstracts (human) into EN (KR)
Results and display/visualization format	
Priority details	Yes
Extracting results to documents	PDF, TXT, RTF, CSV, XML. Batch PDF documents delivery.
Legal status	INPADOC legal status, PATOLIS-e (JP), dead-alive status
Drawings	Image thumbnails (links to PDF images and to esp@cenet drawing mosaics
Analysis tools	– Graphical analysis of patent families – Citations mapping (FamCitation/Patent Citation) – Interactive graphs (Questel Analysis additional tool) – Browse Index
Update alerts	– Search alerts – Legal status alerts

(ii)   PatBase/PatBase Express

46.   PatBase is a search service developed by Minesoft Ltd and RWS Group. In contrast to many other patent search services, PatBase organizes searches and presents search results on the basis of patent families rather than individual patent documents. Thus, among other things, PatBase displays unified classification and assignee data for each patent family record. Within this framework, PatBase covers the Chinese, European, Japanese, Korean, PCT and US collections, as well as the British, French and German collections with historical coverage to 1900 for certain collections. In total, PatBase contains over 38 million patent documents, of which around 25 million are searchable in their full-text. Legal status information is available for certain records, based on the INPADOC dataset

47.   PatBase offers a Quick Search and an extended structured search interface, non-Latin character and a command-line search interface. All interfaces permit the use of Boolean and proximity operators, as well as wildcard operators for simultaneous left and right truncation (SLART). The **Quick Search interface** and **structured search interface** differ in that the Quick Search interface only allows searching in a single field (or composite field) at a time, with the option of filtering by date range or patent office, while the structured search interface supports simultaneous searching in a number of fields at once. No option exists to use Boolean operators across fields in the structured search interface, so all fields are effectively included in the search (i.e., linked by the AND operator). The **non-Latin character search interface** permits searching in Japanese, Chinese, Korean and Russian. Results from the non-Latin character search interface may be merged into results from other search interfaces through the user's search history. The **command-line search interface** permits the flexible use of the full range of operators and field codes supported by PatBase.

48.   The tools available to facilitate searching through PatBase include a **country code search feature**, an **assignee/inventor index lookup tool** to assist users in identifying the spelling of names, and a **"Number Wizard"** designed to assist users in identifying the correct format for priority, application, and publication numbers. PatBase also provides a chemical synonym lookup tool, which includes a limited number of CAS registry numbers.

49.   PatBase offers two options for **reviewing search results**, namely a "view" and a "browse" option. The "view" option shows information for each individual record in a single window. The "browse" option provides information on individual records in a central pane, while other members of the related patent family and displaying tools are accessible through separate panes. The "browse" option also allows users to access the "smart claims viewer", which allows users to click through to independent claims for US and GB documents.

50.   The **display tools** accessible from the search results view include customized search term highlighting ("keyword in context", or "KWIC") and a "Family Explorer" tool. The **Family Explorer** tool facilitates the display of family members and text bibliographic/full-text data, allows the exporting of selected patent family members, and permits users to view the respective **priority map**, a graphical display of the relationship between the various family members based on their priority number. INPADOC legal status may also be reached using the Family Explorer tool.

51.   **Keyword analysis** can be carried out using the VizPat Keyword Analysis tool to identify the most frequently appearing keywords in title, abstract and claims, in title and abstract only, in claims only, or in French, German, or US claims only. PatBase also provides **statistical analysis** of top assignees/applicants, most frequently appearing IPC, ECLA, and PCL classes and F-terms, and top countries of filing through the VizPat Statistical Analysis tool as well as the option of preparing **3D graphs** of results data.

52.   **Search histories** can be viewed and stored in user profiles, and **search alerts** can be set up to obtain information on newly added records meeting specific search criteria.

53.   **PatBaseExpress** is a simplified version of PatBase for novice users and is available in four interface languages, namely English, French, German, and Japanese. PatBaseExpress offers nearly identical search interfaces to those found in PatBase, though with more limited search options (less filtering options). PatBase Express also provides a Number Search interface to allow quick access to a specific patent document based on its publication, application, or priority number.

54.   Related services: PatBase permits exporting of results to the **Minesoft Insight Pro** or **VantagePoint** analysis tool and the **BizInt Smart Charts** report preparation tool. Changes to patent families can be tracked through email alerts using **PatentTracker**.

55.   Added value features:

−   Family-based data structure

−   Manually corrected bibliographic data

−   Non-Latin character (CN, JP, KR, RU) search interface

−   Country code search tool

−   Assignee/applicant index viewer

−   Built-in dictionary and thesaurus

−   Chemical synonym lookup tool

−   Graphical patent family analysis ("Family Explorer")

−   Customized search term highlighting in results ("keyword-in-context", "KWIC")

−   Identification of top assignees, top classifications, and top countries of filing ("VizPat Statistical Analysis")

−   Graphical results analysis (VizPat Statistical Analysis")

−   Keyword analysis ("VizPat Keyword Analysis")

Coverage	
Collections[11]	*Full-text:* CA-B and CN-A and –U (title, abstract, and first claim only), DE-A, -B and -U, EP-A and -B, FR-A, GB-A and -B, JP-A, KR-A and -U, PCT/WO-A, US-A and –B. *Bibliographic data:* AP-A,-B,-U, AR-A,-B,-U, AT-A,-B,-U, BE-A,-B,EP/WO-T, BG-A,-B,-U, BO-A,-B, BR-A,-B,-U, CA-A,-B, CH-A,-B, CL-A,-B, CN-A,-B,-U, CO-A, CR-A,-U, CS-A,-B, CU-A,-B, CY-B, CZ-A,-B,-U, DD-A,-B,-U, DK-A,-B, DO-A, DZ-B, EA-A,-B, EC-A, -B, EE-A,-B-U, EG-B, EE-A,-B-,U, FI-A,-B,-U, GC-B, GE-A,-B, GR-A,-B,-U, HK-B,-U, HR-A,-B, HU-A,-B,-U, ID-A,-B, IE-A,-B,U.
NPL	N/A
Classifications	DEKLA, ECLA, IPC, JP (FI/F-terms), USPC
Search options	
Number search	Publication, application, priority
Patent families	Extended patent families
Name	Inventor, assignee, agent/representative (EP, PCT and US)
Abstracts	Yes
Citations	Forward and backward (EP, US, WO - non-patent)
Limitations	Dates, Countries (DE, EP, JP, US, WO), search fields
Operators	*Boolean:* + ("AND"), - ("NOT"), , ("OR") *Proximity:* Wn (unordered, user-definable), WFn (ordered, user-definable), _ (exact match) *Wildcard (right, left, and internal truncation):* * (unlimited), ? (1 char.), % (0-1 char), ~ (stemming), # (stemming)
Special search tools	− Fuzzy search − Number wizard − Names lookup tool

[11] For full coverage information, see http://www.patbase.com/wnewinfo.asp?i=151

Language	
Interface language	DE, EN, FR, JA
Multilingual search	Non-Latin text search (CN, JA, KR, RU)
Translation features	Full-text (machine) into DE, EN, FR (AR, CN, DE, EP, ES, FR, IT, JP, KR, PT)
Results and display/visualization format	
Priority details	Yes
Data export to documents	Family or Publication report with specification of features to be exported (Word, RTF, CSV, XML, Excel and HTML table format, PDF), results export (CSV, BizInt Smart Charts Data File, Vantage Point)
Legal status	INPADOC legal status (links to national legal registers and legal status reports)
Drawing presentation	Representative drawings, image mosaics (based on esp@cenet), PDF format
Analysis tools	− Graphical 3D results analysis − Statistical results analysis (assignee, inventor, country, class) − Text analysis of results − Graphical citation analysis (citation tree) − Graphical patent family analysis
Update alerts	− Search alerts (email) − Family alerts (email) (PatentTracker – additional subscription)

(iii)   STN

56.   STN on the Web and STN Easy are two web-based system interfaces for the STN online database service, operated by the Chemical Abstracts Service (CAS) of the American Chemical Society and FIZ Karlsruhe. Through its various interfaces, STN provides full-text coverage of the European (EP), PCT and US collections as well as the British, French, and German collections. Bibliographic data and claims in English translation are also available for the Chinese, Japanese, and Korean collections. Other searchable content includes the Derwent World Patent Index (see Section 2. (c) (iii)), the MARPAT Markush structure database and, uniquely, the CAPlus content set, which permits searching of patent documents from the European, German, PCT and US collections from 1997 onwards (as well as non-patent documents) by CAS Registry Number, unique identifiers used to designate chemical substances, compounds, and mixtures as well as biological sequences.

57.   STN on the Web provides a single **command-line search interface**. This interface permits the selection of the databases to be included in a search, which in turn determines which fields can be searched as well as the operators that can be used and their function. The exact characteristics of each database are available through database summary sheets. Generally speaking, the command-line interface permits the use of basic Boolean operators and a wide variety of proximity operators (whose function and availability depends on the databases searched) as well as wildcard operators that can be used for simultaneous left and right truncation (SLART) as well as internal truncation.

58.   The tools and features available through STN on the Web, which must be activated using command-line language, include a **search index viewer** ("EXPAND"), which allows users to examine part of the search index for a particular data field, i.e., a list of terms actually present in that data field, and obtain information on the number of records containing these index terms. This tool can assist users in identifying relevant search terms. STN on the Web also permits the **grouping of patent families** and **removal of duplicate records**. It also permits the **uploading and searching of chemical structures and substructures** in the CAPlus, MARPAT, and CAS Registry databases. **Session histories** can be viewed and exported in a variety of formats.

59.   STN Easy offers four search interfaces, namely Easy, Advanced, Patent Lookup, and CAS Number search interfaces. The **Easy search interface** only enables searching in the "General Science" category of databases and permits the use of Boolean operators and wildcard operators, though only for right truncation. The **Advanced search interface** provides the option of selecting from a broader range of different database categories, including the patents category and several categories that combine patent and non-patent databases such as the "Pharmaceuticals" category. This interface also permits searching by field and the use of Boolean operators (accessed through drop-down menus) and wildcard operators, though also for right truncation only. The **Patent Lookup search interface** is adapted more specifically to searching for patents and provides a pre-defined set of search fields, unlike the user-definable search fields available through the Advanced search interface, and allows only a single Boolean operator to be selected for all search fields (i.e., either AND, OR, or NOT). The **CAS Number search interface** allow the retrieval of information on chemical compounds based on CAS Registry numbers or chemical names, e.g., various synonyms for a particular chemical substance, compound, or mixture. However, this interface does not in itself serve to identify patent documents in itself.

60.   Both the Patent Lookup and Advanced search interfaces for STN Easy provide access to the **search index viewer** described above. Search results for all interfaces can be set to include **customized highlighting of search terms**. STN Easy also provides the option of viewing and exporting search histories in a variety of formats.

61.   Added value features:

−   Cross-content search of patent and non-patent data

−   Additional classification and abstracts (Derwent World Patent Index)

−   Additional chemistry metadata (MARPAT, CAPlus)

−   Chemical structure import and search

−   Search index viewer

- Customized search term highlighting in results

- Patent family grouping

Coverage	STN Easy	STN Express
Collections[12]	*Full-text:* DE-A, -B, -T and -U, EP-A and EP-B, FR-A and -B, GB-A and -B, US-A and –B and WO/PCT-A *Bibliographic data:* DWPI (CN-A,-B,-U, IN-A and -B, JP-A,-B and -U, NZ-B, PH-B, SG-A, TW-A,-B,-U,), INPADOC, KR-A, RU-A	
NPL	Yes (see Section 3. (e) (iii))	
Classifications	ECLA, IPC, JP (F-terms), USPC	
Search options		
Number search	Yes	
Patent Families	CAplus, DWPI, INPADOC	
Name	Inventor, assignee	
Abstracts	Yes	
Citations	Forward and backward citations (patent and NPL)	
Limitations	Search field, date, classification	
Operators[13]	*Boolean:* AND, OR, NOT *Wildcard (right truncation):* ? (unlimited), # (0-1 char.) ! (1 char.)	*Boolean:* AND, OR, NOT *Proximity:* T ("term", unordered); S ("sentence", unordered); P ("paragraph", unordered); L ("field", unordered); W (ordered, user-definable); A (unordered, user-definable) *Anti-proximity:* NOTW, NOTA *Wildcard (SLART and internal, stackable):* ? (unlimited), # (0-1 char.) ! (1 char.) *Numeric (date and number):* = ; < ; > ; =< ; >= ; => ; <=; - (range)
Special search tools	N/A	− Similiarities search (sequences) − Chemical structure search − Markush structure search − Chemical structure drawing tool
Language		
Interface language	DE, EN, ES, FR, JA	
Multilingual search	Yes (DE, EN, ES, FR)	
Translation tool	No	
Results and display/visualization format		
Priority details	Yes (number, date, country)	
Data export	RTF, HTML, PDF (additional fee)	
Legal status	INPADOC legal status	
Drawing presentation	In-line (TIFF, JPEG, GIF)	
Analysis tools	N/A	− Graphical results analysis − Statistical results analysis
Update alerts	N/A	Search alerts

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[12] http://www.cas.org/support/stngen/clusters/pnttext.html. For a review of all available databases see: http://www.cas.org/support/stngen/dbss/index.html.
[13] For further operators see http://www.cas.org/training/stncommands/operators.html

(iv)   **Thomson Innovation**

62.   Thomson Innovation is an integrated search service launched by Thomson Reuters that offers cross-content search across patent data, scientific and technical content, and business information. The patent collections covered by Thomson Innovation include the British, Chinese, European, French, German, Japanese, Korean, PCT and US collections as well as bibliographic data from other collections. Notable among the content included in Thomson Innovation is the Derwent World Patent Index (DWPI), an additional source of classifications and abstracts for the patent documents searchable through Thomson Innovation (see Section 2. (d) (iii)), as well as legal and procedural information for certain collections (European, INPADOC and US). Machine-assisted English translations of titles, abstracts, and claims for more recent Chinese patent documents and machine translations into English of the full-text of recent Japanese and Korean patent documents are also available (and searchable) through Thomson Innovation.

63.   The user can carry out a search using Quick Search, structured Fielded, Expert, Publication Number, and Non Patent Literature search interfaces. The **Quick Search interface** allows users to select only whether to search within a single content set (patent, scientific and technical, or business content) or across all content. However, this interface does support the use of Boolean and wildcard operators. The **Fielded search interface** already offers a greater range of options, including the possibility to select the specific patent collections to be searched (collections by authority) and to search in patent full-text, bibliographic data or Asian translated data or in DWPI data fields. Fields to be searched and Boolean operators can be selected from drop-down menus. The **Expert search interface** adds the possibility of using proximity operators and to more flexibly structure searches. All three search interfaces offer simultaneous left and right truncation (SLART) and internal truncation.

64.   To assist users in formulating their queries in the Expert search interface, Thomson Innovation offers a set of tools including a **command-line code generator** ("fields and tags menu"), a **query syntax checker** ("text syntax"), and a **hierarchical corporate entity index** ("corporate tree"), which groups assignee names within a corporate hierarchy.

65.   The **Publication Number search interface** provides direct access to data associated with a particular patent document or set of patent documents, with four output options ("Result Set", "Work File", "Document Copies", "File Histories") and an expandable "specialized search" panel, allowing the limitation of the search to either patent citations (forward, backward, or both), patent families (INPADOC or Derwent), or records for which family, legal status, publication stage, citations or assignment have changed since a specified date. The Publication Number search interface also permits the option of automatically including the patent family in the search results ("Family Lookup").

66.   Non-patent literature search options are discussed in greater details below (see Section 3. (e)(iv)).

67.   Thomson Innovation offers a number of reviewing and analysis tools and features. Search results may be **grouped by INPADOC or Derwent patent family** ("collapse by family") and **highlighting of search terms** ("keyword in content", or "KWIC") is possible in the text of individual records, where the number of hits for a particular search term is given for specific data fields. Through the Analyze menu, the user can create **charts and graphs** based on pre-defined templates or user-definable options (selecting the fields to be analyzed, the number of items to be included, and various display options), perform **keyword clustering** and **graphical keyword analysis** ("ThemeScape") as well as **graphical patent and non-patent citation analysis**, based on generation, time and generation, and backward or forward citations or both.

68.   **Search histories** may be viewed and saved to user profiles, and **search alerts** and **record change alerts** ("Watched Records") may be set up to track new records meeting given search criteria or changes in the legal or procedural status or in applicant/assignee as well as the addition of new patent family members and new citations for specific records. Results may also be exported in a number of different formats, including PDF, XML, comma and tab-separated text, and proprietary RIS and BizSoft formats.

69.   <u>Added value features:</u>

−   Cross-content search of patent, non-patent, and business data
−   Additional classification and abstracts (Derwent World Patent Index)

- Searchable English translations of Chinese, Korean, and Japanese patent documents
- Legal status data for US, European, other (INPADOC) collections
- Hierarchical corporate entity index ("corporate tree")
- Customized search term highlighting in results ("keyword-in-context", "KWIC")
- Customized charts and reports
- Graphical citation and keyword analysis ("ThemeScape")
- Keyword clustering tool
- Patent family grouping

Coverage	
Collections[14]	*Full-text:* CN-A, CN-U, DE-A, DE-B, DE-U, EP-A, EP-B, FR-A, GB-A, GB-B, JP-A, JP-B, JP-U, KR-A, KR-B, KR-U, US-A, -B, WO-A, *Bibliographic data:* DWPI (CN-A,-B and -U, IN-A, -B, JP-A,-B and –U, NZ-B, PH-B, SG-A, TW-A,-B,-U), INPADOC
NPL	Yes (see Section 3. (e)(iv))
Classifications[15]	DWPI Manual Codes, ECLA, IPC, JP (FI/F-terms), US
Search options	
Number search	Publication
Patent families	INPADOC, DWPI
Name	Inventor, assignee, agent, correspondent, attorney (DE, EP, PCT,US), examiner (US)
Abstracts	Yes
Citations	Forward and backward (patent and NPL)
Limitations	Dates, names, text fields, etc.
Operators	*Boolean:* AND, OR, NOT *Proximity:* NEARn (unordered, user-definable), Adj (ordered) *Wildcard (SLART, internal):*? (one char.), * (unlimited), *n (n represents number of characters)
Special search tools	Cross-content search
Language	
Interface language	EN, JA
Multilingual search	DE, EN, FR
Translation features	Yes
Results and display/visualization format	
Priority details	Yes
Extracting results to documents	TXT, HTML, XML, CSV/TSV, PDF, RTF
Legal status	INPADOC legal status
Drawing presentation	In-line presentation
Analysis tools	– Corporate tree (US, WO/PCT, EP) – Statistical results analysis – Graphical text analysis of results – Text clustering – Graphical citation analysis
Update alerts	– Results alerts – Citation alerts – Family alerts – Legal status alerts

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[14] For full coverage information, see: http://www.thomsoninnovation.com/ti/contentsets
[15] For full information on the use of classifications, see:
http://www.thomsoninnovation.com/tip/support/help/index.htm#codes_and_classes.htm

(v)   TotalPatent

70.   TotalPatent is a patent research, retrieval and analysis product from LexisNexis, a member of the Reed Elsevier Group. It offers access to 27 full-text collections including the Chinese, European, Japanese and US patent offices, as well as Australia, Brazil, Canada, Russia and a host of European patent issuing authorities. In addition to the full-text collections, TotalPatent also permits searching in bibliographic data (including abstracts) from numerous other offices around the world. In total, the service includes more than 40 million records searchable in their full-text and approximately 75 million bibliographic records, 50% of which include an abstract. The majority of collections are searchable in their original language of publication as well as in English through the use of machine translations. TotalPatent also provides access to 16 million citations, and over 33 million INPADOC legal status data plus information on US re-assignments and litigation.

71.   TotalPatent offers Guided Search and Advanced Search interfaces as well as Semantic Search and Notes Search interfaces. The **Guided Search interface**, designed for novice searchers, enables searching by assignee, inventor, IPC or USPC symbol, publication date, and in full-text, title, abstract, and claims simultaneously, in title and abstract, or in title or claims only, as well as other fields that can be added by the user. It also permits filtering by patent collection and the use of Boolean, wildcard and proximity operators within each given field. The **Advanced Search interface**, designed for more expert users, further permits filtering by document type, by patent collection (distinguishing between collections available in full-text or with bibliographic data only), and type of document (granted patent or application). Though both interfaces are laid out as structured search interfaces, they permit the use of field codes, thus effectively permitting command-line queries to be established by searching in the combined full-text, title, abstract, descriptions and claims fields. Overall, TotalPatent indexes approximately 200 data fields.

72.   To assist users accustomed to using Delphion and Micropatent in correctly entering queries, the Guided Search and Advanced Search interfaces provide a "**syntax converter**" from the syntax used by these search services to TotalPatent syntax. A further search tool made available through TotalPatent is its searchable **hierarchical corporate entity index** ("Directory of Corporate Affiliations"), and Assignee and Inventor name indices, which can assist users in identifying different names for companies, their subsidiaries, and inventors to be included in searches.

73.   The **Semantic Search** interface allows users to generate semantic search queries based on specific search terms entered by the user or any text of up to 32,000 characters describing the concept to be searched. TotalPatent identifies the keywords in the entered text and proposes related terms, weighted by relevance from mandatory terms to terms to be excluded in the search. Users have the option to remove suggested search terms or change their weighting before carrying out a search, with the option of including English translations in the searched content and the option to remove family member duplicates. The **Notes Search interface** allows searching of **tags given to specific patent documents** by the user himself or by other users within a particularly user's group (company or organization), which can be searched by the email address of the note's author, its date of creation, title or text.

74.   Among the reviewing and analysis features offered by TotalPatent is the option to **view "main family" data** (equivalent to the Espacenet family) or **"extended family" data** (equivalent to the INPADOC family) for a particular patent document, where main families are composed of documents sharing all priority data and extended families consist of documents sharing at least one priority claim. TotalPatent also offers the possibility of carrying out **graphical results and citation analysis** according to user-defined criteria. Graphs, patent family data, and other data may be exported as customized reports in a variety of formats including text, PDF, and HTML formats.

75.   Search histories may be saved to user profiles, and **search alerts** and **record change alerts** established to track new documents meeting the criteria for a particular search query or changes to a particular patent document, including changes in legal status, new patent family members, new forward citations, and changes in applicant/assignee.

76.   Added value features:

– Searchable machine translations of patent full-text into English
– Legal status data for INPADOC collections and re-assignment and litigation data for US collection
– User-customizable semantic search
– Hierarchical corporate entity index ("Directory of Corporate Affiliations")
– Standardized patent assignee names
– Syntax converter (from Micropatent/Delphion)
– Graphical results and citation analysis
– Patent family viewing
– Searchable user tags

Coverage	
Collections[16]	*Full-text:* DE-A, DE-B, EP-A, EP-B, FR-A, FR-B, GB-A, GB-B, AR-A/B, AT-A/B, AU-A/B, BE-A/B, BR-A, CA-A/B, CH-A/B, DD-A/B, DE-A/B, DK-A/B, ES-A/B, FI-A/B, IE-A/B, IT-A/B, JP-A, LU-A, MC-A, MX-A/B, NL-A/B, NZ-A, PCT-A, PT-A/B, RU/SU-A/B, SE-A/B, US-A, US-B, (in publication language with machine English translation) *Bibliographic data:* INPADOC and over 20 additional collections
NPL	Searchable NPL references (links to Elsevier full-text journals via LexisNexis toolbar)
Classifications	ECLA, FI/F-terms, IPC, USPC,
Search options	
Number search	Yes
Patent families	Main and extended INPADOC
Name	Assignee/applicant, inventor, attorney/agent, examiner (US)
Abstracts	Yes (in language of publication and in English)
Citations	Forward and backward (patent and NPL)
Limitations	Text field, country collections, publication date, classifications, priority data, application number and data.
Operators	*Boolean:* AND, OR, AND NOT *Proximity:* W/n (unordered, user-definable), W/s ("sentence"), PRE/n (ordered, user-definable) *Anti-proximity:* NOT W/n *Wildcard (right and internal truncation, stackable):* ! (unlimited, right truncation only), * (0-1 char.) *Special:* SINGULAR, PLURAL, ALLCAPS, NOCAPS, ATLEAST (term appears at least n times)
Special search tools	– Semantic search – Searchable corporate entity index – Assignee and inventor lookup – Syntax converter (from Micropatent/PatWeb/Delphion)
Language	
Interface language	EN
Multilingual search	Yes
Translation tool	Machine translation
Results and display/visualization format	
Priority details	Yes (number, date)
Extracting results to documents	DOC, RTF, HTML, PDF, TXT, XML, CSV, TSV
Legal status	INPADOC, US re-assignment
Drawing presentation	Thumbnails, mosaics, PDF (bookmarked, searchable, compressed)
Analysis tools	– Graphical results analysis – Graphical citation analysis
Update alerts	Search alerts (email)

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[16] http://corporate.lexisnexis.com/Cms_managed_files/documents/TPlistofauthorities.pdf

(vi)   WIPS Global

77.   The World Intellectual Property Search (WIPS Global) is a searchable patent database that provides full-text coverage of the PCT, European (EP), and US collections. Bibliographic data and English translations of abstracts are available for the Chinese, Japanese, and Korean patent collections. Bibliographic data is available for other collections, while original abstracts are also present for several European collections. Legal status information is provided through the INPADOC content set.

78.   WIPS Global offers a number of different search interfaces, including structured General, Advanced, and Step interface and a Number search interfaces. It also offers an **Integrated search interface**, which permits cross-collection searching (unlike the other interfaces which permit searching only in one collection at a time). The **General search interface** offers the possibility to search in up to two fields, selecting collection, patent type (application/granted patent), document field (front page and exemplary claim or full text), date range to be searched, and the information to be displayed in the search results. The General search interface supports the use of Boolean, proximity, and wildcard operators. The Advanced search interface offers a greater number of search fields, all of which are linked by the AND operator. The **Step search interface** enables users to establish more complex queries by combining individual queries ("steps") set up using a structured search interface. The **Step search interface** supports Boolean operators within each individual query and for linking different queries as well as wildcard operators. The **Number search interface** permits direct access to specific patent documents by way of their application or publication number.

79.   To facilitate searching by applicant name, WIPS Global provides a **searchable corporate name index**, accessible through the Advanced search interface, in which different names for specific applicants are grouped under a single code. **Results can be clustered** according to IPC class, applicant, and application date. **Graphical and text-based citation analysis** can be performed for specific patent documents, graphically illustrating the relationships between forward and backward citations and filtering citations according to generation and other user-definable criteria, respectively. Searches can be saved to user profiles ("My Folder"), while **search results can be batch downloaded** in image format or a variety of text-based formats.

80.   Related services: **PM Manager** and **ThinKlear** provide additional statistical analysis and report creation tools.

81.   Added value features:

–   Corporate name index

–   Legal status data for INPADOC collections

–   Results clustering (IPC class, applicant, application date)

–   Graphical and text-based citation analysis

–   Batch document downloading

Coverage	
Collections[17]	*Full-text:* EP-A and -B, PCT-A, US-A and -B *Bibliographic data:* CH-A, CN-B,-U (including claims), DE-A, FR-A, GB-A, INPADOC ,JP-A, KR-A, -B and -U
NPL	Citations only
Classifications	ECLA, IPC, JP (FI/F-terms), USPC
Search options	
Number search	Application, publication, priority
Patent families	Extended INPADOC, WIPS
Name	Inventor, assignee/applicant (standardized applicant name/code), patent attorney, examiner
Abstracts	Yes
Citations	Forward and backward (US-B, EP-B)
Limitations	Collection, field/section, date
Operators	*Boolean:* AND, OR, NOT, XOR, *Proximity:* NEAR (unordered, user-definable), ADJ (ordered, user-definable), WITH, SAME Anti-proximity: NOTSAME *Wildcards (right and internal truncation, stackable):* * (unlimited), ? (1 char.) *Numeric (date with @ sign):* = , <=, >=
Special search tools	− Similarity search − Automatic search term stemming
Language	
Interface language	EN, JA, KR
Multilingual search	N/A
Translation tool	N/A
Results and display/visualization format	
Priority details	Yes
Data export to documents	TXT, XLS, MDB (Microsoft Access), PMD (ThinKlear), PDF (additional fee)
Legal status	INPADOC legal status
Drawing presentation	Image icons (collective view of representative drawings)
Analysis tools	− Statistical results analysis − Graphical results analysis − Graphical citation analysis
Update alerts	Search alerts

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[17] http://www.wipsglobal.com/WG_Search/Main_content/FuncNDB/DB_Wipsdata.asp

(e)   Free-of-charge commercial databases

(i)   Google Patents

82.   Google Patents provides full-text search of the complete US patent collection, including the period prior to 1976, the earliest date for which full-text search is available through the US Patent and Trademark Office's own PatFT database service. Full-text data for the period prior to 1976 is generated through an optical character recognition process and assigned to fields based on a similarly automatic process, which may be a source of errors in the searchable text and in its assignment to various fields.

83.   Google Patents offers basic and advanced patent search interfaces. The basic search only provides one field to enter any search key word. The advanced patent search provides the possibility[18] to limit the results in those which contain all the words, the exact phrase, one of the words or exclude these words from the search. Further search options are patent number, title, name of inventor or assignee, US/IPC classification, search in issued patents or applications, the type of patents (plant, utility, X patent, reissue etc), and issue and/or filing date. The keywords are highlighted, even within an image/drawing and can be viewed along with the rest of the patent/application information search results through the PNG format in one page.

84.   A list of maximum 600 results is displayed, ranked upon relevance, with title of the invention/application, filing/application number and date, publication number, as well as name of assignee, a snippet of text and a hyperlink to retrieve the patent. The results can be viewed also as thumbnails and the user can thus get a graphical overview of the applications/issued patents. Clicking on the hyperlink, the user has the option to read the patent (or application) or download it as PDF. He can directly be taken to the abstract, drawing, description and claims part of the patent (or application) and search within it for keywords, which then are highlighted. Google Patent Search offers a **clip tool** which enables the selection of a part of an image or text in order to paste the clip into a blog or a webpage.

85.   Moreover, in a recent agreement with the USPTO, Google will provide bulk electronic patent and trademark data to the public.

86.   <u>Added value features:</u>

−   Searchable full-text of US collection including for period prior to 1976

−   Search term highlighting in results and results images

−   Clip tool

Coverage	
Collections[19]	*Full-text:* US-A and –B
NPL	N/A
Classifications	IPC, USPC (original classifications only)
Search options	
Number search	Application, publication
Patent Families	N/A (priority and continuation information only)
Name	Inventor, assignee
Abstracts	Through abstracts section
Citations	Forward, backward
Limitations	Search text, filing date, issue date, patent type

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[18] http://www.google.com/advanced_patent_search?
[19] http://www.google.com/googlepatents/about.html#adv

Operators	*Boolean:* AND, OR, NOT, - ("NOT") *Wildcard (no truncation):* * (complete word)
Special search tools	N/A
Language	
Interface language	EN
Multilingual search	N/A
Translation tool	N/A (see: Google Translate)
Results and display/visualization format	
Priority details	Yes
Data export to documents	PDF, PNG, HTML, plain text
Legal status	N/A
Drawing presentation	Thumbnail view, full drawings (PNG, embedded in PDF)
Analysis tools	N/A
Alerts	Search alerts (RSS)

(ii) Patent Lens

87.   Patent Lens is a multi-country search service provided by Cambia. It offers full-text search of PCT applications, US patent applications and granted patents, and European (EP) granted patents as well as full-text search (excluding claims) of Australian patent applications and granted patents, a feature not currently offered by IP Australia. INPADOC legal status information is available for many patent documents included in the service.

88.   The following search forms are offered: Number Search; Quick Search; Structured Search; Expert Search; and US Sequence Search. **Number Search** allows search by patent or publication number, where patent collections and document types to be included in the search can be selected. **Quick Search** enables keyword or patent/publication number search, with a stemming option and the possibility to limit the search to certain patent collections. In addition to the options available through the Quick Search, **Structured Search** provides the possibility to search in specific fields, including applicant/assignee, front page, title, abstracts, inventor, agent, references, description, and claims (not for Australian documents). It further permits the possibility to filter results by publication/filing date and by predicted expiry date or lapsed date (for US patents only). Expert Search offers the option of a command-line search in the fields covered by the Structured Search. In addition, PatLens also offers a DNA, RNA and Protein **Sequence Search** which can be carried out either by patent number and Sequence/Genbank ID or by INPC DNA, RNA and Protein. **Similarities search of biological sequences** can also be carried using the National Center for Biotechnology Information's BLAST software.[20]

89.   The results can be ranked by relevance, patent number and application or publication date.

90.   Added value features:

−   Full-text search of Australian patent documents

−   Biological sequence search including similarities search (BLAST)

Coverage	
Collections[21]	AU-A and –B, EP-B, PCT-A, US-A and –B
NPL	NPL citations only (for US-B)
Classifications	IPC, ECLA (EP only), USPC (US only)
Search options	
Number search	Application, publication, patent
Patent families	Extended INPADOC
Name	Assignee, inventor, agent
Abstracts	Yes
Citations	Forward (US-B, EP-B), backward (US-B, EP-B, AU-B)
Limitations	Publication/filing date, predicted expiry/lapsed date (US-B only), front page, title, abstract, inventor, assignee, agent, title/abstract, references, claims, description
Operators	*Boolean:* AND, OR, AND NOT, NOT *Proximity:* NEAR/# (unordered, user-definable) *Wildcards (right and internal truncation):* * (unlimited)
Special search tools	Sequence search, BLAST sequence similarities search
Language	
Interface language	EN
Multilingual search	Yes (full PCT text also searchable in Chinese)
Translation tool	N/A

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[20] http://www.ncbi.nlm.nih.gov/blast/download.shtml
[21] http://www.patentlens.net/daisy/patentlens/search/search-help.html#dsy558_collections

Results and display/visualization format	
Priority details	Yes
Data export to documents	Patent citations (PDF, RIS)
Legal status	INPADOC legal status
Drawing presentation	In-line in PDF documents
Analysis tools	N/A
Update Alerts	Search alerts (RSS)

(f)   Databases provided by WIPO and national and regional offices

(i)   World Intellectual Property Organization

91.   The World Intellectual Property Organization (WIPO) offers full-text search of international patent applications, filed within the framework of the Patent Cooperation Treaty (PCT), as well as access to certain national and regional collections through its PATENTSCOPE® search service. At present, the offices covered include ARIPO, Cuba, Israel, Mexico, the Republic of Korea, Singapore, South Africa and Viet Nam. For PCT applications and patent documents from Cuba, Israel, and Mexico, full document images are available. Additionally, related documents including search reports, forms, and declarations can also be retrieved for the PCT collection as well as sequence listings, where available.[22] PCT national phase entry data can also be accessed for over 40 offices around the world as can the most recent status information available for PCT applications, through the International Application Status Report (IASR).

92.   The PATENTSCOPE® search service provides basic, structured (fielded), advanced, and cross-lingual search interfaces. The **basic search interface** offers the option of searching in full-text, by ID/number, international classification, names, or publication dates across one or more collections. The **structured (fielded) search interface** provides a wider range of searchable data fields, which can be linked using Boolean operators. Additional search fields may be added as necessary to allow greater flexibility in searching without requiring knowledge of field codes. The **advanced search interface** permits the use of command-line query syntax, including field codes and a full range of Boolean, proximity, range, and special operators. All three interfaces allow the use of proximity and wildcard operators as well as the **fuzzy search** operator. They also permit the selection of the query language used and automatic word stemming.

93.   The **cross-lingual search interface** allows the simultaneous searching of a given term in one language in its variants in multiple languages (currently: English, French, German, Japanese and Spanish). Automatic and manual ("supervised") term expansion modes are available, where the manual mode permits the user to select the technical field to which the entered term belongs and adjust how closely the variants must be related to this term. Finally, the fields in which the term and its variants are to be located can be selected.

94.   Search results can be ordered by relevancy, publication date, or application date. **Statistical analysis** is automatically performed on search results to show number of records for top offices of filing, top fields of technology (top IPC classes), top applicants, top inventors, and publication dates. **Graphical representations** of these top groups can be prepared, and **additional filtering** of search results can be carried out for these groups.

Coverage	
Collections[23]	*Full-text:* CU-A, IL-A, MX-A, PCT-A, ZA-B *Bibliographic data:* AP-A, KR-A, SG-A, VN-A
NPL	N/A
Classifications	IPC
Search options	
Number search	Application, publication, priority, national phase entry (PCT only)
Patent families	N/A (PCT national phase entry data only)
Name	Applicant, inventor, legal representative
Abstracts	Yes (English, French, original)
Citations	N/A
Limitations	Text (title, abstract, description, claims), office code, application date, publication date, IPC, applicant address, applicant residence, applicant nationality, legal representative address, filing language, publication language, priority number, priority date, priority country, national phase entry date, national phase entry number, national phase entry country, national phase

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[22] For complete information on document coverage, see: http://www.wipo.int/pctdb/en/content.jsp
[23] http://www.wipo.int/patentscope/search/en/result.jsf

	entry type
Operators	*Boolean*: AND, OR, NOT, ANDNOT, + ("AND"), - ("NOT) *Proximity*: ~n (user-definable), NEAR *Wildcard (right and internal truncation)*: ? (1 char.), * (unlimited) *Numeric and range (numbers, dates, names):* -> , TO *Special:* ~ (fuzzy search)
Special search tools	N/A
Language	
Interface language	DE, EN, FR, ES, JA
Multilingual search	– EN, FR, ES, JA, DE, RU, KR, PT, VN, HE – Cross-lingual semantic search
Translation tool	N/A
Results and display/visualization format	
Priority details	Priority number, date, designated states, status
Data export to documents	PDF, TIFF (document images) HTML (document text) XML (bibliographic data) JPG (images)
Legal status	Yes (for PCT national phase entries)
Drawing presentation	Representative drawing (JPG), in-line drawings (PDF, TIFF)
Analysis tools	– Graphical results analysis – Results clustering (collection, main applicant, main inventor, IPC, publication date) – Relevance ranking
Update alerts	Search alerts (RSS)

(ii) Australia

95. Through its AUSPAT search service,[24] IP Australia offers search of Australian patent applications and PCT applications filed from 2004 that have entered the national phase in Australia and all PCT applications designating AU filed from 1980 to 2003. Australian applications filed between 1920 and 1979 are generally searchable only by application number and IPC symbol, while later applications are searchable according to additional bibliographic data. Descriptions (specifications) are available through the system but are currently not searchable.[25] Document images are provided for patent documents published from late 1998. Legal and procedural status information, including information on oppositions, is available and generally searchable for applications covered by AUSPAT.

96. AUSPAT offers three interfaces for searching patent applications, namely Quick, Structured, and Advanced Search interfaces. **Quick Search** allows simultaneous search in a limited number of bibliographic data fields, namely patent or application number, title, applicant/inventor/agent name and PCT/WO number. **Structured Search** permits the selection of one or more specific data fields in which to carry out a search, including additional fields not available for search using the Quick Search such as pharmaceutical name, priority date and number, and expiry date. **Advanced Search** further allows the use of Boolean operators.

97. Through the Advanced Search interface, users have access to **searchable applicant and inventor name indexes** ("Name Selector") as well as a **procedural action search wizard** ("Publication Action Selector"). Search histories and selected applications may be saved to **user profiles** ("MySearches" and "MyList"). Saved search histories may be combined to create composite queries, while saved applications can be further evaluated and exported.

Coverage[26]	
Collections	*Bibliographic data:* AU-A and -B,[27] WO (AU national phase only from 2004, AU designation from 1980-2003)
Non-patent literature	N/A
Classifications	IPC
Search options	
Number search	Application, priority, PCT publication, PCT application
Patent families	N/A
Name	Applicant, inventor, agent
Abstracts	N/A
Citations	N/A
Limitations	Date, search fields
Operators	*Boolean:* AND, OR, NOT *Wildcard:* * (unlimited), ? (1 char.), multiple wildcards within search terms allowed (wildcards can be used for left truncation, internal truncation or right truncation) *Numeric (date):* TO (range)
Special search tools	– Searchable applicant and inventor name index – Searchable legal and procedural status – Combinable search histories – Custom document lists
Language	
Interface language	EN

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[24] AUSPAT supersedes the PATADMIN and PatSearch services, which are expected to be fully integrated into AUSPAT in 2010.

[25] Coverage of searchable full-text from 1904 to present, including abstracts, descriptions, and claims (separately searchable from 1998), is under production.

[26] http://www.ipaustralia.gov.au/auspat/auspat_coverage_v1.0.pdf

[27] Bibliographic data of unpublished AU applications including provisional (priority) applications is available from 1979.

Multilingual search	N/A
Translation tool	N/A
Results and display/visualization format	
Priority details	Yes
Legal status	Yes (and procedural status)
Drawing presentation	N/A
Data export to documents	CSV, PDF (bibliographic data only) TXT (application numbers from results)
Analysis tools	N/A
Update alerts	N/A

(iii)   Canada

98.   The Canadian Intellectual Property Office (CIPO) offers full-text search (excluding descriptions) of its collection from August 15, 1978 onwards and search in bibliographic data from 1869 onwards. Full document images (including descriptions) can be accessed for applications registered as far back as 1920. Procedural status information, including regarding the payment of fees, as well as information regarding withdrawals is also accessible through CIPO's database.

99.   Canadian patent documents are published in the language in which the document was filed (English or French, Canada's official languages). However, the Canadian Patents Database display both English and French titles except for applications filed between 1960 and 1978 where titles are available only in the language used at the time of filing. For Canadian patent documents originating from PCT applications, abstracts received since 2000 are also available in both official languages.

100.   The database can be searched using Basic Search, Boolean Search, Advanced Search, and Number Search interfaces. **Basic Search** carries out a simultaneous search in multiple fields and offers the option of carrying out a search simultaneously in French and English data available through the databases ("bilingual search"). **Boolean Search** allows selection of up to three data fields to be searched including title, abstract, and claims, IPC, and CPC (Canadian patent classification) as well as the use of Boolean operators (AND and OR only). This interface also permits filtering of results by date range, direct or PCT filing, and availability for licensing. **Advanced Search** permits the use of additional Boolean, proximity, and special operators, however only within a particular search field, and extends the available search fields to include fields such as inventor country. **Number Search** can be used to navigate directly to the application or procedural status for a particular patent document. Though not available directly within a standard interface, full command-line search can be carried out from the results screen for the Basic, Boolean, and Advanced Search interfaces.

Coverage[28]	
Collections	*Full-text (excluding description):* CA-A and –B, WO (CA national phase only).
NPL	N/A
Classifications	IPC, CPC (prior to 01.10.1989)
Search options	
Number search	Application, publication, PCT publication, PCT application
Patent families	N/A
Name	Applicant, inventor, owner
Abstracts	Yes (from 15.08.1978)
Citations	N/A
Limitations	Date, text field, classification, language, inventor country, filing type - PCT indicator, license availability
Operators	*Boolean:* AND, OR, NOT *Proximity:* NEAR (unordered), PARAGRAPH, SENTENCE, ORDER *Wildcards (left, right, and internal truncation):* * (unlimited), ? (1 char.) *Numeric (dates):* <=, >=, = *Special:* ACCRUE (results ordering according to frequency)
Special search tools	N/A
Language	
Interface language	EN, FR
Multilingual search	EN, FR (titles and abstracts where available)
Translation tool	Bilingual search feature (EN, FR) (Basic Search interface)
Results &display/visualization format	
Priority details	Yes

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[28]http://brevets-patents.ic.gc.ca/opic-cipo/cpd/eng/currency_of_information.html

Data export to documents	PDF
Legal status	Withdrawals only and procedural status
Drawing presentation	Representative drawing, view drawings via image link and in PDF Biological Sequence Listings (BSL) as filed by the applicant can be downloaded in electronic text format.
Analysis tools	N/A
Update alerts	N/A

(iv)   People's Republic of China

101.   The State Intellectual Property Office of the People's Republic of China (SIPO) offers search in bibliographic data (including abstracts) of Chinese patent application and utility models in both the Chinese and English languages.

102.   Search interfaces are available in both English and Chinese, offering the possibility to search by application and publication numbers and dates, IPC classification, applicant, inventor, and agent names, priority number, as well as country and province codes using pre-defined search fields. The English language interface also permits command-line searching, including the use of Boolean operators. Results can be further refined by searching within the results set and can be filtered according to patent applications or utility models.

103.   English translations are available of bibliographic data and abstracts for patent applications, while bibliographic data (including titles) for utility models are also available in English translation. Machine translations into English of descriptions and claims can be prepared on the fly using the China Patent Machine Translation (CPMT).

Coverage	
Collections	*Bibliographic data:* CN-A and –U (CN and T/EN abstract), WO/PCT-A (CN national phase only)
NPL	N/A
Classifications	IPC
Search options	
Number search	Application, publication, priority
Patent families	N/A
Name	Applicant, inventor, agent
Abstracts	Yes
Citations	N/A
Limitations	Title, abstract, priority, date, name, IPC, province/country code
Operators	*Boolean:* x ("AND"), * ("AND"), - ("OR"), +("OR"), - ("NOT")
Special search tools	N/A
Language	
Interface language	EN, CN
Multilingual search	N/A
Translation tool	Machine translation (claims and description) China Patent Machine Translation (CPMT)
Results and display/visualization format	
Priority details	Yes
Legal status	N/A
Drawing presentation	TIFF (additional fee)
Data export to documents	N/A
Analysis tools	N/A
Update alerts	N/A

(v)   Germany

104.   The German Patent and Trademark Office (DPMA) offers search and access for the German collection in full-text and for numerous other collections (bibliographic data only) through its DEPATISnet search service. Additionally, full document images may be downloaded in PDF format for a limited number of collections.

105.   Search interfaces are fully available in German and English and include a Beginner, Expert, IKOFAX, and Family search interface. The **Beginner interface** provides a number of standard search fields including publication date and number, applicant and inventor, classifications, and full-text (though description and claims are only searchable for the German collection). The **Expert and IKOFAX interfaces** both permit command-line searching using the IKOFAX search language, while the Expert interface provides assistance in formulating queries by allowing users to select data fields and operators to be included in the search from a drop-down menu or using clickable buttons, respectively. The **Family interface** permits the identification of INPADOC patent families by entering the publication number of a specific patent document. The Assistant interface allows to forward requests to professionals at the German Patent Information Centres.

106.   Related services: DEPATISnet Premium is offered by the DPMA to patent information centers and other select institutions and includes additional functionalities such as search histories and batch downloading of patent documents in PDF format.

Coverage	
Collections[29]	*Full text:* DE/DD-A, -B, -U
	Bibliographic data: AT-A, -B, and -U, CH, EP-A and -B, FR-A and -B, GB-A and -B, JP-A and -B, KR-A and -B, US-A and -B, WO, INPADOC
NPL	NPL Citations (bibliographic data) only
Classifications	DEKLA, IPC
Search options	
Number search	Application, publication
Patent families	Patent family search interface
Name	Inventor, applicant
Abstracts	Yes
Citations	Yes (patent and NPL)
Limitations	Publication number, date, name, classification
Operators[30]	*Boolean:* AND, OR, NOT
	Proximity: (nW) (ordered, user-definable), (nA) (unordered, user-definable), (P) ("paragraph"), (L) ("field")
	Anti-proximity: (NOTW) (ordered)
	Wildcard:? (unlimited) , ! (1 char.), # (0-1 char.)
	Numeric (dates and numbers): <, >, =, >=, <=
Special search tools	N/A
Language	
Interface language	DE, EN
Multilingual search	DE, EN, ES, FR, PT
Translation tool	N/A
Results and display/visualization format	
Priority details	Yes (number, country, date, year)
Extracting results to documents	PDF, XLS
Legal status	N/A
Drawing presentation	In-line
Analysis tools	N/A
Update alerts	N/A

(vi)   The United Kingdom

107.   In addition to fee-based "expert search" services, the Intellectual Property Office of the United Kingdom also offers a free-of-charge database service, permitting searching of patent applications and granted patents filed in the United Kingdom by: patent data, publication data, and supplementary protection certification (SPC) number. Patent documents for the United Kingdom are also accessible through the esp@cenet search service (see Section 2. (f) (xv)), though SPC number searches can only be carried out using the UK IPO database service.

108.   Through the **Patent Number Search** the user can carry out a search by application or publication number (for application filed after 2007) and have information on the **patent status** delivered, either via the "full details" button for a complete status history or the "Current Details" button for current status. The status of European patents designating the United Kingdom may not be current, though, and can only be accurately determined based on information provided through the EPO Register.[31] The **Publication Number Search** enables search by publication number or date and allows a search limitation to specific document type (application, specifications etc). It should be noted that this search only covers publications from January 3, 2007 to date. Furthermore, the **SPC Search** allows search by Patent or SPC number.

Coverage	
Collections	*Bibliographic data:* GB-A and GB-B, EP/GB, GB ceased/expired/terminated
NPL	N/A
Classifications	(IPC, ECLA, UKC available not searchable)
Search options	
Number search	Publication, application, Supplementary Protection Certification (SPC)
Patent families	N/A
Name	N/A
Abstracts	N/A
Citations	N/A
Limitations	Search field, publication date, document type
Operators	N/A
Special search tools	N/A
Language	
Interface language	EN
Multilingual search	N/A
Translation tool	N/A
Results and display/visualization format	
Priority details	Yes
Data export to documents	N/A (just PDF through esp@cenet link)
Legal status	Yes
Drawing presentation	N/A
Analysis tools	
Update alerts	N/A

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[31] https://register.epoline.org/espacenet/regviewer

(vii)   Hong Kong, Special Administrative Region of China

109.   The Intellectual Property Division of the Government of the Hong Kong Special Administrative Region offers the possibility to search published standard patent applications, granted standard patents and short-term patents with two search schemes, namely Simple and Advanced search. The **Simple search** allows the user to search within patent applications, granted or short-term patents, to carry out search by Hong Kong application/publication/patent number or even within a range of these numbers, applicant's name, title of invention, address for service or Hong Kong filing date. The user may use the operators "contain word", "exact word" or "part word".

110.   The **Advanced Search** interface allows a more complex search allowing the user to search besides other search criteria also the publication/request to record date, Hong Kong Granting Patent or Designated Patent (DP) Filing date/publication number, as well as search in Abstracts (limited to short-term patents) and to priority date or inventor's name.

111.   The results are displayed either in "**basic results**" or "**main results**" view, with publication number and invention title and hyperlink to the patent document specification in the first case and application/publication/DP publication number, applicant/proprietor name, title, status, maintenance due date and specification link in the second case.

Coverage	
Collections	*Bibliographic data:* CN (HK designations only), EP (HK designations only), GB (HK designations only), HK –A and –B,
NPL	N/A
Classifications	IPC
Search options	
Number search	Publication, application, designated patent, patent
Patent families	N/A
Name	Applicant, owner
Abstracts	Only for short-term patents
Citations	N/A
Limitations	Date (filing, publication, priority, request to record, grant), record type (published application, granted standard patent, short-term patent)
Operators	*Wildcard (SLART and internal):* % (unlimited), _ (1 char.).
Special search tools	N/A
Language	
Interface language	EN, CN (traditional and simplified)
Multilingual search	N/A. Search in interface language, user can switch though to EN or CN result list
Translation tool	N/A
Results and display/visualization format	
Priority details	Yes (date)
Data export to documents	PDF
Legal status	Yes (and administrative status)
Drawing presentation	In-line (in PDF documents)
Analysis tools	N/A
Update alerts	N/A

(viii)   Israel

112.   The Israel Patent Office enables searching of bibliographic data (including abstracts from 1970 to 2000) and access to full document images in PDF format for Israeli patent documents through its online patent database service. Legal and administrative status information can also be retrieved using the database service.

113.   The service provides basic and Advanced Search interfaces both in English and Hebrew. Searches can be carried out in both English and Hebrew in all available bibliographic data fields. The **basic search interface** allows searching in a single data field, including application, international application, and publication number, reference, related patent or priority data. The **Advanced Search interface** further permits searching by title, applicant and inventor names, classification, application and priority dates, primary and secondary status ("new application", "application abandoned", "application rejected", "patent cancelled", "patent expired", and others). Limited use of Boolean operators is possible using the Advanced Search interface.

114.   Documents can be selected from the results list for a particular search, and marked documents can be opened for viewing in a **custom results list** or prepared for **batch printing**. For specific patent applications, the **related patent documents** can be retrieved through the record view.

Coverage	
Collections	*Bibliographic data:* IL-A, WO-A
NPL	N/A
Classifications	IPC
Search options	
Number search	Application, patent, priority, PCT application, PCT publication, reference
Patent families	N/A
Name	Applicant, inventor
Abstracts	Yes
Citations	N/A
Limitations	Title, applicant name, inventor name, patent number, PCT application number, PCT publication number, primary status, secondary status, classification, application date, publication date, priority date
Operators	*Boolean:* AND, OR
Special search tools	N/A
Language	
Interface language	EN, HE
Multilingual search	EN, HE
Translation tool	N/A
Results and display/visualization format	
Priority details	Yes
Data export to documents	PDF
Legal status	Yes (legal and administrative)
Drawing presentation	PDF format Link to drawings (not searchable)
Analysis tools	N/A
Update alerts	N/A

(ix)   India

115.   Through its Indian Patent Information Retrieval System (IPAIRS, formerly IPIRS) search system, the Office of the Controller General of Patents, Designs and Trademarks of the Government of India provides separate search and access facilities for published Indian patent applications and granted patents. Full patent specifications can be accessed in text format for recently granted patents, while older granted patents can be retrieved in PDF image format for older granted patents.

116.   For both patent applications and granted patents, Quick Search and Advanced Search interfaces are provided. The **Quick Search interface for patent applications** enables searching for a single term in one or more data fields selected by the user, including application and journal number, date of publication, applicant and inventor name, title, abstract, and IPC classification. The **Quick Search interface for granted patents** further allows the addition to the searched fields of patent number, date of grant, patentee name, and date and country of priority. The **Advanced Search interfaces** for both patent applications and granted patents allow the combining of two search terms using Boolean operators (selected together with search fields from drop-down menus). The Advanced Search interface for granted patents currently does not permit the searching of the additional fields regularly permitted using the Quick Search interface. By contrast, the Advanced Search interface for patent applications additionally allows filtering of search results according to the office of filing (Delhi, Mumbai, Kolkata, and Chennai).

Coverage	
Collections	*Bibliographic data:* IN-A and –B, WO (IN national phase only)
NPL	N/A
Classifications	IPC
Search options	
Number search	Application, patent, journal
Patent families	N/A
Name	Applicant, inventor, owner
Abstracts	Yes
Citations	N/A
Limitations	Specific search field (application/patent number, applicant/inventor/patentee, date of filing/application/grant/priority and title of invention/abstract, IPC, priority country, region in India)
Operators	*Boolean:* AND, OR, ANDNOT
Special search tools	N/A
Language	
Interface language	EN
Multilingual search	N/A
Translation tool	N/A
Results and display/visualization format	
Priority details	Yes (priority country and date)
Data export to documents	PDF and HTML
Legal status	N/A
Drawing presentation	Limited availability (representative drawings only)
Analysis tools	N/A
Update alerts	N/A

(x)   Japan

117.   The patent collection of the Japan Patent Office can be searched and accessed using the Industrial Property Digital Library (IPDL), operated by the National Center for Industrial Property Information and Training (INPIT). The collection comprises granted patents from 1996, published patent applications and utility models from 1971, examined patent applications from 1922 to 1966, and patent specifications from 1885 to 1956. Legal status information is also available for applications filed from 1990.

118.   A range of different interfaces are available for the IPDL, including a Quick Search, Front-Page Search, Gazette Text Search, PAJ Search, FI/F-Term Search and number search interface. The latter three interfaces are available both in English and Japanese, while the other interfaces are available in Japanese only. A **FI/F-term search tool** ("Patent Map Guidance") is also provided with both English and Japanese interfaces to allow the identification of FI/F-term symbols (Japanese classification) using IPC concordance or keyword search.

119.   **Quick Search** enables simultaneous search in title, abstract, claims, etc, with the option to retrieve only those documents containing all entered search terms or to retrieve documents containing any entered search term. **Front-Page Search** includes the possibility to search up to three terms (all of which must be found in retrieved documents) and limit the results to a specific publication date range and according to a given set of IPC symbols. **Gazette Text Search** allows users to select the type of document to be searched and to flexibly combine a wide range of different search fields including classification (IPC and FI/F-terms), title, abstract, description, and claims using Boolean operators. Automatic word stemming is carried out, adding various word combinations sharing a common word stem with the entered search term to the search. Using **FI/F-Term Search**, document type, F-term theme, and publication date range can be selected as well as FI/F-terms/facets to be included in the search, the latter of which may be combined using Boolean operators. Legal and procedural status information can be retrieved from the record view for any of the four interfaces.

120.   **PAJ Search** is carried out on the basis of the Patent Abstracts of Japan (PAJ), translations into English of bibliographic data and abstracts for patent applications filed after 1976. Patent Abstracts of Japan can be searched according to applicant name, title, and abstract and limited to a specific range of publication dates and set of IPC symbols. Legal status information can be retrieved in English for patent applications included in the Patent Abstracts of Japan.

121.   **Number Search** facilitates direct access to specific patent documents by way of their publication numbers. A **concordance tool** is provided to assist users in identifying publication numbers required to retrieve patent documents using the number search interface by entering the appropriate patent application number, examined or unexamined document number, or registration number.

122.   A **machine translation tool** is made available to translate patent document text available only in Japanese into English, including description and claims of applications for documents included in the Patent Abstracts of Japan, for which human translations are only available for bibliographic data and abstracts.

Coverage	
Collections/Full text	Full-text: JP-A, -B and –U, WO (JP national phase only)
NPL	Journal of Technical Disclosure)
Classifications	IPC, FI/F-term
Search options	
Number search	Application, publication, patent, appeal/trial, technical disclosure journal number
Patent Families	N/A
Name	Applicant
Abstracts	Yes
Citations	N/A
Limitations	Search field (all pages, front page, claims, drawings), kind code

Cross-content search	N/A
Operators	*Boolean:* AND, OR, NOT, * ("AND), + ("OR"), - ("NOT") *Special:* "delimiter characters"[32]
Special search tools	- IPC / FI/F-term concordance - FI/F-term keyword search - Publication number concordance
Language	
Interface language	EN, JA
Multilingual search	Yes (EN, JA)
Translation tool	JA-EN
Results and display/visualization format	
Priority details	Yes
Data export to documents	TXT, HTML, TIFF, PDF
Legal status	Yes
Drawing presentation	In-line and separate representative drawings
Analysis tools	N/A
Update alerts	N/A

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[32] http://www19.ipdl.inpit.go.jp/PA1/html/help/paj_main_text_search.html

(xi)   Republic of Korea

123.   The Korea Intellectual Property Rights Information Service (KIPRIS) provides two search options of its Patent and utility model database: General and Advanced search. Through the **General search,** the user can perform a keyword search choosing if he wishes to search for patents and/or utility models, limit the results to a certain search period or administrative status and also use the option of Multilanguage search (English/Korean), while an extra section in the General search enables a number search through selection of the patent/ utility model type (application/ publication/ unexamined publication/ registration of patent or utility model) and date and relevant number. In case that a multilingual search is enabled, the system simply translates the English search keyword and then searches the Korean translation within the Korean full-text.

124.   The **Advanced search** feature on the other hand enables search in the above mentioned fields, along with priority date, applicant/inventor/agent/patentee name and combine the search fields using Boolean operators "and" and "or".

Coverage	
Collections[33]	*Full-text:* KR-A and –U
	Bibliographic data: KR-A and –U (T/EN)
NPL	N/A
Classifications	IPC
Search options	
Number search	Application/registration/publication number
Full text	Yes (KR)
Name	Applicant/inventor/patentee/patent agent
Abstracts	Yes
Citations	N/A
Limitations	Search field, legal status
Operators	*Boolean:* * ("AND"), + ("OR"), *! ("NOT") (advanced search)
	Proximity: ^n (unordered, user-definable, 3 words maximum)
Special search tools	N/A
Language	
Interface language	EN, KR
Multilingual search	Yes (EN, KR)
Translation tool	Yes (extra fees/subscription necessary)
Results and display/visualization format	
Priority details	Yes
Data export to documents	XLS, DOC (results lists)
	PDF (document images, login necessary)
	JPG (drawings)
Legal status	Yes
Drawing presentation	Yes
Analysis tools	N/A
Update alerts	N/A

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[33] http://eng.kipris.or.kr/eng/search_guide/data_coverage.jsp

(xii)   New Zealand

125.   The Intellectual Property Office of New Zealand offers search of bibliographic data (including abstracts) and access to full document images of New Zealand patent documents published from 1900 to the present through its online database service. Legal and procedural status information, including data regarding renewals, objections, and licensing, can also be retrieved for certain documents.

126.   The service offers a single structured search interface to unregistered users. Through the interface, all fields can be searched simultaneously, or individual fields can be searched separately. Searchable fields include various names, ID numbers, dates (including expiry information), classifications (IPC and NZ), keyword fields, and document types. **Case-sensitivity** can be optionally selected for all fields. **Legal and procedural status information is also searchable**. A wide variety of Boolean, proximity, wildcard, and special operators can be used, however only within a given search fields and not across different fields, which are therefore all included in the search by default. To assist users in structuring their queries, **query builders** are provided for several fields. **Searchable applicant/assignee, inventor, and agent/contact name indices** including address information in certain cases are also provided to help users locate the desired person or corporate entity by entering at least three letters from the beginning or elsewhere in the name. Results can be selected for individual or **batch viewing and delivery**. Delivery can be made by email or fax free of charge.

127.   Related services: Registered users have access to an additional **advanced search interface**, allowing them to make command-line queries using field names and a wider set of search operators. They may also set preferences, save queries, and access search histories.

Coverage	
Collections	*Bibliographic data:* NZ-A and –B
NPL	N/A
Classifications	IPC, NZC
Search options	
Number search	NZ, journal, PCT publication, PCT application, Convention Document
Patent Families	N/A
Name	Applicant/assignee, inventor, owner, agent
Abstracts	Yes
Citations	N/A
Limitations	Title & office title, document text, IPC, NZ class, date (renewal, expiry, publication, filing, registration, national phase entry, registration, provisional specification), document type (abstracts/abridgements, informal or published completed specification), status
Operators[34]	*Boolean:* AND, OR, NOT, ACCRUE ("OR", used in ranking) *Proximity:* NEAR/n (unordered, user-definable), PARAGRAPH, PHRASE, SENTENCE *Wildcard (simultaneous right and internal truncation):* ? (1 char.), * (unlimited), ENDS (right truncation), STARTS (left truncation), SUBSTRING (SLART), WILDCARD (specified variants) *Numeric:* = , > , >= , < , <= *Special:* ORDER ("set proximity to ordered"), CASE ("case-sensitive"), MANY ("ranking"), SOUNDEX ("sounds like"), THESAURUS ("synonyms"), TYPO/n ("similar", user-definable: number of transpositions)
Special search tools	- Patent owner name index - Applicant/assignee/inventor/agent name index

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34 For a full list of available operators, see: http://www.iponz.govt.nz/cms/banner_template/IPPATENT (selecting "searching guide")

	- Query builder
	- Case sensitivity option
Language	
Interface language	EN
Multilingual search	N/A
Translation tool	N/A
Results and display/visualization format	
Priority details	Yes
Data export to documents	PDF, TIFF (document images) JPG, DOC (abstract) GIF (representative drawings)
Legal status	Yes
Drawing presentation	In-line
Analysis tools	N/A
Update alerts	N/A

### (xiii)	United States of America

128.	The United States Patent and Trademark Office offers access to granted patents through its PatFT database service and to published patent applications from March 15, 2001 through its AppFT database service. Patents granted prior between 1790 and 1975, available through the PatFT service, are only searchable by patent number, issue date, and current US patent classification (USPC), while all other documents in the PatFT and AppFT services are searchable in full-text. Text records do not include drawings; however, full document images in TIFF format including drawings can also be retrieved through the PatFT and AppFT services.

129.	Both services offer Quick and Advanced Search interfaces, while the PatFT service additionally offers a **patent number search interface** and the AppFT **a publication number search interface**. The **Quick Search interface** allows searching in two separate data fields, which can be selected by the user and combined using Boolean operators. Right truncation is available using wildcard operators. The **Advanced Search interface** allows command-line search syntax (a list of the allowed field codes is displayed underneath the query fields) along with a keyword search. For both the Quick and Advanced Search interfaces, the PatFT service also permits the selection of the period to be searched (from 1976 or from 1790). Search terms are highlighted in the search results.

130.	Related services: **Legal and procedural status information** can be retrieved through the Patent Application Information Retrieval (PAIR) service using application, control, patent, PCT, and publication numbers. **Assignment information** can also be retrieved through a separate Patent Assignment Database service. An **IPC-USPC concordance tool** is provided to assist in the identification of USPC symbols based on IPC symbols and vice versa. The USPTO also offers a **sequence search** scheme through the Publication Site for Issued and Published Sequences (PSIPS) providing sequence Listings, tables, and other mega items for granted US patents or published US patent applications, available for viewing and download. The users may access this information through the proper document detail page and then submitting a SEQ ID NO or a mega table ID number in the relevant search field.

Coverage	
Collections	*Full-text:* US-A, US-B
NPL	N/A
Classifications	USPC, IPC
Search options	
Number search	Patent number, application number
Patent families	N/A
Name	Assignee, inventor, attorney/agent, examiner (primary, assistant)
Abstracts	Yes
Citations	Backward (patent)
Limitations	Classification, date, patent number, name, search field
Operators	*Boolean:* AND, OR, ANDNOT *Numeric (dates):* -> (range) *Wildcards (right truncation):* $ (unlimited)
Special search tools	Sequence search (view only)
Language	
Interface language	EN
Multilingual search	N/A
Translation tool	N/A
Results and display/visualization format	
Priority details	Yes
Data export to documents	HTML (email), TIFF
Legal status	Yes (separately through PAIR)
Drawing presentation	In-line (TIFF document images)
Analysis tools	- Search term highlighting
Update alerts	N/A

(xiv) Eurasian Patent Organization

131.   The Eurasian Patent Organization (EAPO) offers access to: a) the **EAPO database** of published Eurasian applications and patents with bibliographic data and abstracts for patents in English, bibliographic data and abstracts for applications in Russian, full description of applications and patents in Russian and b) **EAPATIS**, with records from EAPO, WIPO, EPO, USPTO, Soviet Union, Russia and CIS countries, and countries included in the "PCT minimum documentation". Over 40 local databases (DB) are supported with access to world, regional and national collections of patent documentation. The Russian language collection consists of patent documentation of EAPO, Russia, national patent offices of the Eurasian region including documentation from Eurasian Patent Convention Contacting States. The following DBs are presented in English: Eurasian patents (since 1997), patent documentation from the CISPATENT data [35](Armenia, Belarus, Georgia, Kyrgyzstan, Moldova, Russia, Tajikistan, Ukraine and Uzbekistan, and the Eurasian Patent Office), patent documentation of countries included to the PCT-minimum documentation (WIPO, EPO, USA, Japan, Canada etc.), while the Eurasian version of esp@cenet provides access to the esp@cenet database with English and Russian as possible search languages.

132.   The user may have access to published Eurasian applications and patents via the EAPO database only by using the application or patent number search option. The results are often displayed in Russian with a link to esp@cenet, where the abstract in English can be viewed.

133.   The EAPATIS system on the other hand can be accessed in two ways: **free-of-charge** or on a **fee base**. In both cases the user may carry out an **advanced**, a **number** (quick) or a **professional search**, while the fee-based access provides the possibility of a metasearch, allowing search in esp@cenet, epoline, Patentscope, USPTO and JOPAL databases. The **quick search** allows only search by patent number with country codes but without truncation. The **advanced search** on the other hand allows the user to choose EAPO-EN and/or CISPATENT databases to be searched and includes publication/application number, IPC code, date, person/firm name and/or keyword as possible search fields. The result includes link to the front page and/or description PDF file, as well as links to Delphion (for users who are Delphion subscribers), esp@cenet and the Register.

134.   The free-of-charge access covers the Eurasian patents and the CISPATENT databases. The Eurasian patent database contains bibliographic data and abstracts in English and the front pages (in Russian), full texts of the descriptions of inventions in Eurasian patents (in Russian). The CISPATENT database is a co-product of the Commonwealth of Independent States and the Eurasian Patent Office(EA). and contains bibliographic data and abstracts in English and full descriptions of patent documents in original languages.

135.   The **"requests analyzer"** offers assistance to the users as it provides them with messages elaborating possible query mistakes and making proposals in order to optimize the search results, while the preview button allows seeing in advance the search query and altering it if necessary before proceeding to the search results. The query results contain abstracts and bibliographic descriptions of the patents and further data when IPC data is searched.

136.   Access on a paid basis is open to all databases of the system in advanced, number and professional modes, as well as metasearch. Front pages and full descriptions of Eurasian patents and published Eurasian applications are presented. The features of zero results analysis and the request analyzer should be mentioned, providing help messages and recommendations in case an error is found in the query or zero results are displayed.

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[35] Including data from the Commonwealth of Independent States (CIS):Armenia(AM), Belarus(BY), Georgia(GE), Kazakhstan(KZ), Kyrgyzstan(KG), Moldova(MD), Russia(RU),Tajikistan(TJ), Ukraine(UA), Uzbekistan(UZ)) and the Eurasian Patent Office(EA).

	EAPATIS	EAPO DB (only number search)
Coverage		
Collections[36]	*Bibliographic data:* (descriptions) including CIS countries national collections: AM, BY, GE, KG, KZ, MD, RU, SU, TJ, UA, UZ, - patent documents in the original document language and EAPO	EAPO-A (RU) and –B (RU and T/EN)
Cross-content search	N/A	N/A
Classifications	IPC	
Search options		
Number search	Application, patent	
Patent Families	N/A	
Name	Applicant, inventor, patentee (natural person or firm)	
Abstracts	Yes	
Citations	N/A	
Limitations	Application/patent number, classification, date, name, title, abstract.	N/A
Operators	*Boolean:* AND, OR	N/A
Special search tools	- Requests analyzer - Search query assistant	
Language		
Interface language	EN, RU	
Multilingual search	Yes (EN/RU)	
Translation tool	N/A	
Results and display/visualization format		
Priority details	Yes	
Data export to documents	PDF (front page and/or description)	
Legal status	Yes (link to Registry, in RU only)	
Drawing presentation	In-line (representative drawings)	
Analysis tools	N/A	
Update alerts	N/A	

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[36] For full information on coverage, see: http://www.eapatis.com/enSearch/info/db_eapatis.htm; http://www.eapatis.com/ENGLISH/desc-en.htm

(xv)   European Patent Office

137.   Esp@cenet is a free patent search service offered by the European Patent Office. Its content is based on the INPADOCDB bibliographic data set and INPADOC legal status data set, currently covering over 80 and over 50 patent authorities, respectively.[37] In addition to allowing searching in bibliographic data for the aforementioned collections, esp@cenet also permit full-text search of European and PCT applications in English, German, and French.

138.   With regard to the search schemes four search options are offered, allowing the user to choose among Worldwide, WIPO or EP databases:

139.   The **Quick Search** enables search by keyword, choosing whether to search in title/abstract or for persons/organizations.

140.   **Advanced Search** allows keyword search in title/abstract, search by publication/application/priority number, publication date, applicant/inventor's name and/or ECLA or IPC classification. Only English keyword entries are accepted and then can result in English translated abstracts (that excludes from the results patents the abstracts of which have not been translated, such as patents before 1970). A maximum of 4 search terms may be entered in each field, and a total of 21 search terms and 20 logical operators within the search mask as a whole. With regards to the publication date, no wildcards characters can be accepted.

141.   **Number Search** carries out search by application, publication or priority number with or without country code prefix. The two first characters of the search inquiry should be the country code. Non-patent literature (NPL) reference number search is also possible for the XP documents, namely the NPL documents classified by the ECLA classification system and/or cited in the EPO search report. It should be noted that the NPL reference number is the only way to retrieve such information.[38]

142.   **Classification Search:** this search option allows keyword search in particular fields of technology showing the relevant ECLA classes/subclasses and allowing thus a refined search by ECLA classes, as the selected results may be copied and used for search in the Advanced Search form. The classification search results may include a number of embedded images.

143.   **Smart Search:** The smart search enables simple/multi-word as well as complex searches and it also allows command line searches. The smart search mask can be used as a widget and thus be dragged and

144.   After choosing which type of search to carry out, the results – the first 500 - are **displayed** with the keyword(s) highlighted. 20 of them can be saved in "my patents list" and be retrieved –if cookies are enabled- for a year. The claims tab may include a "**claims tree**" which provides a graphical presentation and hierarchy of dependent and independent claims.

145.   The document contents can be immediately translated into German, French, Swedish, Portuguese, Italian and Spanish using the EPO's own machine translation system, while non-Latin characters text can be translated into English. An INPADOC legal status tab is also available while more information can be retrieved through the provided link to the European Patent Register. **Register Plus** allows access to all publicly available data related to European patent applications until the grant procedure, namely administrative and legal data on EP, Euro-PCT and PCT filings.

146.   **Drawing mosaics** are offered allowing quick review scanning of all drawings, while batch document download and printing are possible via the EPO's Open Publication Server (OPS).

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[37] For full information on data coverage, see:
http://documents.epo.org/projects/babylon/eponet.nsf/0/2464E1CD907399E0C12572D50031B5DD/$File/global_patent_data_coverage_0110.pdf
[38] http://ep.espacenet.com/help?locale=en_EP&method=handleHelpTopic&topic=npl

| **Coverage**	
Collections[39]	*Full-text:* EP-A and -B, WO-A *Bibliographic data:* AT-A, -B, and -U, BE, BG-A and -U, CH, CZ-A and -U, DE-A and -B, DK-A and -U, EE-A, ES-A and -U, FI-A and -U, FR-A and -B, GB-A and -B, GR-A, HR-A, HU-A and -U, IE, INPADOC, IS, IT, LT, LU, LV-A, MC, NL, NO, PL-A and -U, PT-A and –U, SE-A and -B, SI, SK, TR,
NPL	NPL citations
Classifications	ECLA, IPC
Search options	
Number search	Application/publication/priority/NPL reference number
Patent families	INPADOC simple (exactly same priority documents – no extra priority) and extended (family members which share at least one priority) family data – link
Name	Applicant/inventor
Abstracts	Yes
Citations	Forward and backward citation. Link to citing documents on the bibliographic data tag (data stemming from examiner's search report), cited are indicated on the patent document.
Limitations	Search field (title, abstract), date (publication, date range), classification
Operators	*Boolean operators*: AND, OR, NOT *Wildcards*: "?" (0-1 characters, up to three ? permitted, following at least two characters), "#" (1 character), "*" (unlimited characters) and can only be included in title/abstract/inventor/applicant search fields. *Proximity operators:* Prox/distance<x, prox/unit=sentence, prox/unit=paragraph, prox/ordered for searching words within x words, within a sentence, paragraph or in a given order, respectively, *Comparison operators*: (= equal to), = = (exactly equal to), all, any, within (providing date range), >=, <=).
Special search tools	N/A
Language	
Interface language	DE, EN, FR
Multilingual search	Yes
Translation tool	Yes (automatic translation link – translation of English descriptions into DE, ES, FR, ITA, SE or PT and non-Latin text into English)
Results and display/visualization format	
Priority details	Yes
Data export to documents	PDF downloads (images, full patent documents), hit results in CSV format which can be imported into Excel Sheet ("Export" button)
Legal status[40]	INPADOC legal status tab (viewed but not searched)
Drawing presentation	Thumbnail representative drawing (where PCT minimum documentation requirements met), PDF original document image and drawing mosaics for many records, Image mosaics, a number of embedded images within the classification search scheme.
Patent analysis tools	N/A
Update alerts	N/A

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3. REVIEW OF NON-PATENT LITERATURE DATABASE SERVICES

(a) Introduction

147. Non-patent literature (NPL), as the term suggests, consists of any documents that are not patents. In the context of the international patent system, it generally refers to scientific and technical literature and represents an important element of the prior art used to determine the novelty of an invention. The European Patent Office has found that, on average, 15 percent of citations in search reports are derived from NPL, while 3 percent of search reports contain only NPL citations. In fact, in certain fields of technology, NPL encompasses a larger part of the prior art than patent documents. For example, in biochemistry, the EPO has found that over 60 percent of examiner citations are derived from NPL sources.[41]

148. NPL describes a wide range of different publications, a few examples of which are depicted in Figure 1.

Figure 1. Non-patent literature
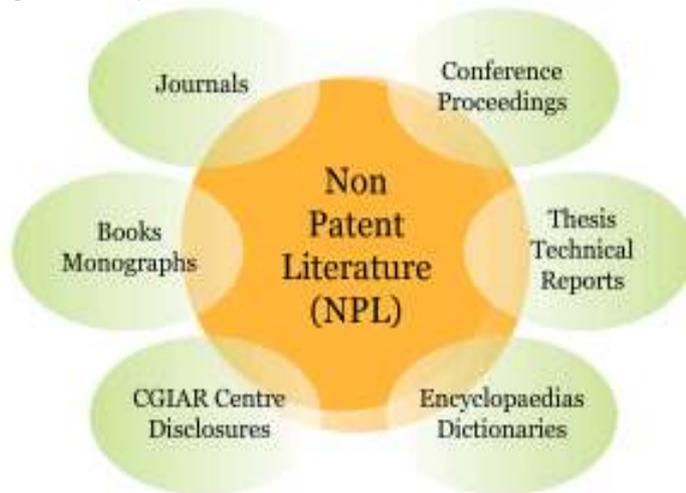
Source: CGIAR, "CGIAR centre publications as prior art", http://www.cas-ip.org/projects/cgiar-centre-publications-as-prior-art/

149. Like patent documents, books, journals, conference proceedings, and other types of publications that constitute NPL have become far more easily accessible as a result of their increasing availability in electronic form through the Internet. Nonetheless, locating and accessing relevant NPL prior art remains a challenge as a result of the diversity of channels through which these scientific and technical publications originate and are distributed. Indeed, whole new sources of NPL prior art such as webpages and blogs have emerged with the advent of the Internet as a means of publication.

150. Sources of NPL include:

– Publisher databases;

– Library databases;

– Government databases;

– Trade association databases;

– College and university databases; and

– Personal websites of researchers.

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[41] Yves Verbandt and Emmeline Marttin, "Search in Non-Patent Literature (NPL)", Presentation at Search Matters 2009 (30-31 March 2009).

151.   Across these many sources of NPL, documents also lack the large degree of uniformity in structure present in patent documents, further compounding the challenges faced in searching scientific and technical literature.

152.   Furthermore, in spite of an emerging trend towards free access and open access in scientific and technical publishing, most NPL publications can only be accessed on a fee-paying basis. Thus, regardless of the accessibility of NPL documents, organizations and individuals involved in the patenting process, from inventors and applicants to patent examiners, must be selective in their use of NPL as a source of information. To address this issue, which disproportionately affects patent offices, individual inventors, universities, and SMEs in developing countries, the World Intellectual Property Organization has launched the Access to Research for Development and Innovation (aRDi) program in cooperation with several major scientific and technical publishers. This program, discussed in greater detail in Section 3. (h), is designed to facilitate access to scholarly journals for patent offices and academic and research institutions in developing countries in particular least developed countries (LDCs).

(b)   Structure and methodology

153.   To provide an overview of content types and features available across different services for searching and accessing NPL, this Guide reviews a selected group of online search services and journal databases. The services summarized here include some of the most widely used search services and journal databases, as identified through Circular C.N 3024. Nonetheless, they are not intended to serve as an authoritative list of NPL services but rather to illustrate characteristics common to various services. The Guide also outlines features of selected content sets searchable or accessible through a number of the services reviewed here such as the MEDLINE content set.

154.   For the purposes of the present Guide, NPL is defined to exclude business methods and traditional knowledge. Though publications in these fields undoubtedly contribute to the prior art, business methods are patentable only in a limited number of jurisdictions, while the complexity of traditional knowledge as a source of data suggests a separate, dedicated study of the subject.

155.   Though substantial overlap exists between the features available through search services and journal databases, these types of services are distinguished here for purposes of clarity and comparability. Generally speaking, journal databases (which may also contain other types of publications such as books or conference proceedings) lack the sophisticated search and analysis features available in search services, while search services frequently do not provide the possibility to access documents identified through searches in their full-text version unlike journal databases.

Search services (free)	
Google Scholar	http://scholar.google.com
Scirus	http://www.scirus.com
Entrez	http://www.ncbi.nlm.nih.gov/Entrez
PubChem	http://pubchem.ncbi.nlm.nih.gov
PubMed	http://www.ncbi.nlm.nih.gov/pubmed
PubMed Central	http://www.ncbi.nlm.nih.gov/pmc
Search services (commercial)	
Dialog	http://www.dialog.com
Scopus	http://www.scopus.com
STN	http://www.stn-international.de
Thomson Innovation	http://www.thomsoninnovation.com
Journal databases (free)	
Directory of Open Access Journals	http://www.doaj.org
SciELO	http://www.scielo.org
Journal databases (commercial)	
American Chemical Society	http://pubs.acs.org
IEEE Xplore	http://ieeexplore.ieee.org
ScienceDirect	http://www.sciencedirect.com

| SpringerLink | http://www.springerlink.com |
| Wiley InterScience | http://www.interscience.wiley.com |

156.   To facilitate a comparison of features available through services reviewed here, summary tables are provided for each service. The following information is provided through the summary tables:

157.   **Subject area** describes the fields of technology covered by the service based on the WIPO technology classification, with the major classes being: Electrical engineering, Instruments, Chemistry (including biotechnology), Mechanical engineering, and Other fields (including civil engineering).

158.   **Coverage** describes the types of publications covered by the service and the historical coverage and language availability for each type of publication (where available). The types of publications are classified as journals, books, technical reports, magazines, conference proceedings, others (including newspapers). Journals refer to scholarly periodicals in various fields of science and technology, usually published according to a regular schedule with content subject to peer or editorial review. Technical reports similarly describe advances in science and technology but are not generally subject to peer or editorial review. Conference proceedings compile papers submitted within the framework of academic conferences and therefore do not typically follow the same regular pattern of publication as journals. Magazines are mainly trade publications, summarizing news in a particular industry. Books may include textbooks or other longer scholarly work focusing on a specific scientific or technical topic.

159.   **Content** indicates the elements of documents that can be accessed (and not merely searched) through the database. These elements may include bibliographic data, abstracts, and full-text or other items such as chemical structures.

160.   **Journals from PCT Minimum Documentation** includes all journals contained in the list provided in Part 4.2 of the WIPO Handbook on Industrial Property Information and Documentation that are accessible in their full-text through the database. These journals represent the documentation that must be, in any case, consulted by International Searching Authorities when carrying out an international search. Information on journals from the PCT Minimum Documentation contained in a database is provided for content repositories only.

161.   **Search operators** include Boolean, proximity, and wildcard operators (see Section 2(b)(ii)). Information is also provided on the types of truncation possible using wildcard operators (left, right, and internal as well as simultaneous left and right truncation, or "SLART").

162.   **Search filters** are typically means of limiting a results set using given (rather than freely user-definable) search criteria. Thus, for example, users may be given the option to select from a list of journal titles to which a search is to be limited.

163.   **Search fields** are data fields or sets of data fields that can be searched independently from other data contained in the database.

164.   **Metadata** refers here to classification schemes and controlled or uncontrolled keyword sets.

165.   **Language (interface)** indicates the different languages in which search interface and results screens are available.

166.   **Additional tools** include features designed to facilitate searching, to analyze and export search results, and to track changes in database content.

167.   **User support** includes various types of support documentation ("help pages") and interactive or on-site support provided to assist users in effectively using the service.

168.   **Patent data** indicates all types of patent documents that can be searched or accessed through the service.

(c)   Database content sets

169.   Certain content sets are common to a number of different search services. These content sets include: Inspec, the IP.com Prior Art Database, MEDLINE, and Embase.

(i)   Inspec

170.   Inspec is a bibliographic database published by the Institution of Engineering and Technology (IET), with a particular focus on physics, computer science, and engineering. Inspec contains more than 11 million records covering over 4,000 journals, around 2,200 conference proceedings, as well as books, reports and dissertations from 1969. An archive file extends the historical coverage to the period from 1898 to 1968. Records in Inspec are classified according to a proprietary hierarchical classification scheme but also according to the IPC (through a concordance with the Inspec classification scheme). Controlled index terms are also used to represent inorganic substances and materials, astronomical objects, and numbers found within records and thus address the difficulties posed by synonymous representations of identical concepts (e.g. the number one thousand being represented as 1000, 10^3, 1.0E+3, etc.). Inspec content is incorporated into database services such as Questel Orbit and Thomson Innovation.

(ii)   IP.com Prior Art Database

171.   The IP.com Prior Art Database (often referred to simply as "IP.com") is a full-text database that incorporates a number of corporate disclosure publications such as the IBM Technical Disclosure Bulletin, the Siemens Disclosure Journal, and the Xerox Disclosure Journal as well as similar publications from Microsoft, Motorola, and Sony. Its content also includes disclosures from the US National Institute of Standards and Technology as well as disclosures from various parties made through the US Patent and Trademark Office ("statutory invention registrations") and the Internet Society ("requests for comments"). The historical coverage varies according to the specific dataset. The Xerox Disclosure Journal constitutes part of the PCT NPL Minimum Documentation. Content from the IP.com Prior Database is included in such services as Orbit.com.

(iii)   MEDLINE

172.   MEDLINE is a bibliographic database compiled by the National Institutes of Health (NIH) National Library of Medicine. Its content encompasses over 16 million records and covers over 5,200 journals in the fields of "life sciences, behavioral sciences, chemical sciences, and bioengineering",[42] the large majority of which are published in English. The journals indexed in MEDLINE date from 1963 to the present, though content from 1950 to 1963 is also available through the associated OLDMEDLINE database. Over 80 percent of MEDLINE records include English-language abstracts. MEDLINE incorporates the MeSH (Medical Subject Headings) hierarchical classification scheme, which encompasses over 25,000 symbols ("descriptors"). MEDLINE content is primarily disseminated by the NIH Center for Biotechnology Information through its PubMed database service but also through other sources such as Thomson Innovation and the STN database services.

(iv)   Embase

173.   Embase is a bibliographic database provided by Elsevier focusing on biomedicine and pharmacology. Its content includes more than 20 million records covering over 7,300 journals and book series from 1974, published in a variety of languages, notably English and Chinese. Content from 1943 to 1973 is available separately through the Embase Classic database. Around 80 percent of Embase records (90 percent of Embase Classic records) include abstracts. There is significant overlap between the content set of Embase and MEDLINE (approximately 60 percent of journals indexed in Embase are also contained in MEDLINE), particularly in certain subject areas.[43,44] Records contained in Embase are classified according to the Emtree hierarchical classification scheme, which includes 56,000 symbols ("preferred terms") and fully incorporates the MeSH classification scheme. Embase content is incorporated, e.g., into the Dialog and STN database services

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[42] United States National Library of Medicine, "Fact Sheet: MEDLINE®", http://www.nlm.nih.gov/pubs/factsheets/medline.html (Accessed 12 January 2010).

[43] Elsevier, "What are the differences between MeSH and Emtree?", http://www.info.embase.com/UserFiles/Files/Embase emtree_mesh_.pdf (Accessed 12 January 2010).

(d)   Free-of-charge search services

(i)   Google Scholar

174.   Google Scholar offers a **basic search interface** and an **advanced search interface**, both of which allow a range of common search operators. The **advanced search interface** distinguishes itself from the basic search interface by the option to search in specific fields and filter results according to language and subject area. The coverage of the search carried out by Google Scholar varies according to subject area[45] and is thought to have a bias towards English language content.[46,47] Generally speaking, the **coverage** includes "peer-reviewed papers, theses, books, abstracts and articles, from academic publishers, professional societies, preprint repositories, universities and other scholarly organizations."[48]

175.   **Searching by field** is possible according to title, author name, publication (source title), and date. Since the fields are defined probabilistically, field searching is not error-proof (i.e., data may be considered erroneously to belong to a particular field, e.g., the page number 1945 may be interpreted as the date of publication).

176.   **Filtering by language** is possible in the following languages: Chinese (traditional), Chinese (simplified); German, English, French, Japanese, Korean, Portuguese, and Spanish. **Filtering by subject area** is possible for the following areas: Biology, Life Sciences, and Environmental Science; Business, Administration, Finance, and Economics; Chemistry and Materials Science; Engineering, Computer Science, and Mathematics; Medicine, Pharmacology, and Veterinary Science; Physics, Astronomy, and Planetary Science; Social Sciences, Arts, and Humanities. Evidence points to the fact that these subject areas are not entirely distinct from one another in retrieved results (i.e., results may be found in multiple subject areas).

177.   Both the basic and advanced search interfaces are available in **multiple languages**, including Arabic, Chinese (traditional), Chinese (simplified), English, French, German, Japanese, Korean, Portuguese, and Spanish (not Russian). The interfaces permit the use of Boolean operators and phrase truncation (effectively a type of unordered proximity operation where an asterisk is used as a wildcard operator to represent each word separating the given search terms). They also support **semantic searching** through the addition of a tilde (~) before each term for which synonyms and other related terms are to be searched.

178.   Results are sorted by relevance, which is determined "weighing the full text of each article, the author, the publication in which the article appears, and how often the piece has been cited in other scholarly literature."[49] From the results list, users can find additional content relevant to their search by following links below each title to: documents in which a particular result is cited ("**cited by**"); and similar articles ("**related articles**"). Citations can be imported using the "**Bibliography Manager**" in a number of formats, including BibTex, EndNote, RefMan, RefWorks, and WenXianWang.

179.   Google Scholar only displays an extract from relevant documents in its results list and does not itself provide access to full-text content. However, for certain participating institutions, "**Library Links**" can be displayed in the results list, which highlight those documents to which users have authorized access through their institution. This feature can also highlight documents available in hard copy at local libraries, provided that the libraries list their holdings in the Online Computer Library Center's Open WorldCat, or available for purchase in electronic copy through the British Library ("BL Direct"). Through the results list, **additional**

[Footnote continued from previous page]

[44] P. Royle, L. Bain, L. Payne, M. Hill, and N. Waugh, "The value of literature searching beyond medline and embase for systematic reviews of interventions and epidemiology in diabetes", Health Technology Assessment International. Meeting (2004: Krakow, Poland)

[45] Virginia Wilson, "A Content Analysis of Google Scholar: Coverage Varies by Discipline and by Database" Evidence Based Library and Information Practice, Vol. 2, No. 1 (2007)

[46] Chris Neuhaus et al., "The Depth and Breadth of Google Scholar: An Empirical Study" Libraries and the Academy Vol. 6, No. 2 (April 2006): 214-219.

[47] Philipp Mayr and Anne-Katrin Walter, "Studying Journal Coverage in Google Scholar" Journal of Library Administration Vol. 47, No. 1&2 (January 2008): 81-99.

[48] Google, "About Google Scholar", http://scholar.google.ch/intl/en/scholar/about.html (Accessed 12 October 2009)

[49] Ibid.

versions of documents can also be accessed, which may include versions freely available in full-text (e.g., versions published on authors' websites). However, these versions may differ from the version cited in the results list (e.g., with the peer-reviewed published version appearing in the results list and pre-print manuscripts appearing as additional versions).

Subject area	General
Coverage	Journals Books Technical reports Conference proceedings Other
Search operators	*Boolean:* AND, OR; + ("AND") ; - ("NOT") *Wildcard:* * (one word)
Search filters	Language; Subject area
Search fields	Article title; Article full-text; Author name; Date
Metadata	None
Language (interface)	Arabic; Armenian; Bulgarian; Chinese (traditional); Chinese (simplified); Croatian; Czech; Danish; Dutch; English; Filipino; Finnish; French; German; Greek; Hebrew; Hindi; Hungarian; Indonesian; Icelandic; Italian; Japanese; Korean; Latvian; Lithuanian; Malay; Norwegian; Polish; Portuguese; Romanian; Slovak; Serbian; Slovenian; Spanish; Swedish; Thai; Turkish; Ukrainian; Vietnamese
Additional tools	- Semantic search - View forward citations - View related documents - View additional versions - Bibliography Manager - Library Links
User support	Help pages
Patent data	Yes (US collection, see also Google Patents)

(ii) Scirus

180.   Scirus is a free search service provided by Elsevier. It covers over 350 million webpages determined to be "science-related" as well as a selection of additional sources including journal databases and content repositories. It also covers a range of patent data through Lexis-Nexis. The webpages searched include: "university pages (domains ending with .edu, .ac.uk, and educational sites within other countries); scientific organizations (.org) and conference pages; company pages with scientific R&D information or information relevant to researchers (.com); government pages dealing with science, including health and sciences like law (.gov); scientist and author home pages."[50]

181.   It offers a **basic search interface** and an **advanced search interface**, both of which permit the use of common search operators and field searching (using field codes in the basic search interface). The advanced search interface additionally provides for the possibility to filter results according to date, information type, file format, content source, and subject area. **Filtering by information type** allows users to include or exclude abstracts, articles, books, company homepages, conferences, patents, preprints, scientist homepages, and theses and dissertations from their search results. **Filtering by file format** permits users to select whether the results are to be in any format, PDF, HTML, Word, Powerpoint, TeX, or PostScript format. By **filtering by content source**, users can choose to include the entire range of content searched by Scirus or pick from a pre-defined list of selected sources. The areas for which **filtering by subject area** is available include: Agricultural and Biological Sciences; Astronomy; Chemistry and Chemical Engineering; Computer Science; Earth and Planetary Sciences; Economics, Business and Management; Engineering, Energy and Technology; Environmental Sciences; Languages and Linguistics; Law; Life Sciences; Materials Science; Mathematics; Medicine; Neuroscience; Pharmacology; Physics; Psychology; Social and Behavioral Sciences; and Sociology.

182.   Results can be sorted according to relevance (determined on the basis of keyword and citation frequency) or date. Each result is linked to **similar results**, determined on the basis of keywords from the search as well as keywords extracted from the search result itself. **Additional filtering** can be carried out from the results list, according to content source and file type. Furthermore, results can be refined by selecting additional terms proposed on the basis of the initial search. Finally, citations, abstracts and keywords from selected results can be emailed, saved, or exported in RIS or text format.

Coverage	Journals (more than 10 million articles)
	Other (webpages, more than 350 million)
Search operators	*Boolean:* AND; OR; ANDNOT; + ("AND"); - ("NOT")
	Wildcard (right truncation): * (unlimited); ? (1 character)
Search fields	Article title; Article full-text; Journal title; Author name; Author affiliation; ISSN; URL
Search filters	Date; Content source; Subject area; Document type; File format
Metadata	None
Language (interface)	English
Additional tools	- Additional results filtering
	- View related documents
	- Email/save results lists
	- Export results lists (RIS or TXT formats)
User support	Help pages
Patent data	Yes (More than 1.3 million patent documents searchable)

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[50] Scirus, "About Us", http://www.scirus.com/srsapp/aboutus/ (Accessed 13 October 2009)

(iii)   Entrez

183.   Entrez is the portal to the database services made available by the National Institutes of Health (NIH) through its National Center for Biotechnology Information (NCBI). These database services include PubMed, PubMed Central, and PubChem as well as protein, gene and genome sequence and other types of databases. Entrez also provides links to books and journals indexed by NCBI and to the MeSH classification system.

184.   Entrez offers a **command-line search across all NCBI databases**. The cross-database search permits the use of basic **Boolean operators, phrases, and nesting** as well as **right truncation** and **searching by field** in a wide range of data fields. Numbers of results for each database are shown, while results can be directly accessed from the individual databases. From the results for individual databases, users can **refine search results**. Additional search terms can be identified and added directly from the **database index**. The individual databases also generally allow users to **view and save the session history** and combine results from multiple searches in their session history. Selected **records can also be exported in XML format**.

185.   NCBI allows users to access its databases using their own **customized applications** through a set of server-side programs ("Entrez Utilities", or "eUtils"). The programs permit retrieval of summary data or document IDs related to a particular search and batch downloads of documents, among other things.

Subject area	Instruments; Chemistry
Coverage	Journals Books Technical reports
Content	Bibliographic data; Abstracts (partial); Full-text (partial); Other (chemical structures; chemical reactions; sequences)
Search operators	*Boolean:* AND; OR; NOT *Wildcard (right truncation):* * (unlimited) *Numeric (date):* : (range)
Search fields	Accession number; All fields; Author name; Enzyme Commission number; CAS Registry number; Feature Key; Database subset; Gene name; Journal issue; Journal name; Journal volume; Keyword; Record modification date; Molecular weight; Organism; Page Number; Primary accession number; Properties; Protein name; Publication date; Sequence identifier; Sequence length; Substance name; Text word; Title; Unique identifier
Metadata	MeSH
Language (Interface)	English
Additional Tools	(depending on individual database)
User Support	Help pages (English)
Patent Data	No

(iv)   PubChem

186.   PubChem encompasses three interlinked databases, namely the **PubChem Substance**, **PubChem Compound**, and **PubChem BioAssay** databases. The PubChem Substance database contains chemical structure information submitted by numerous sources including government agencies, universities and research centers, and private companies. The PubChem Compound database clusters the information submitted to the PubChem Substance database according to structural similarity, grouping information related to identical chemical structures into single records. The PubChem BioAssay database contains biological activity information submitted for chemical substances included in the PubChem Substance database as well as information on the experimental conditions under which the biological activity data was collected. All three databases also include links to the respective data sources, from which additional substance or biological activity data can be obtained.

187.   All three databases offer basic and advanced command-line search interfaces as well as a chemical structure search interface and biological activity ("BioAssay") search interface. Both the basic and advanced command-line search interfaces permit the use of basic Boolean operators and searching by field (where the available fields are determined the database in which the search is carried out). The advanced command-line search interface provides assistance in structuring more complex queries by providing structured search fields ("limits") as well as a query builder. The chemical structure search interface enables searching by synonyms, MeSH classification, and chemical properties and identifiers ("descriptors") as well as molecular formula. It also allows users to draw chemical structures or enter CID, SMILES, or InChI text-based representations of substances and carry out identity or similarity searches using these structures or text representations. The biological activity search interface permits searching by single or multiple substances and targets using synonyms, text representations, and other identifiers as well as by assay ID (AID) number. Search histories are automatically generated and can be accessed for up to eight hours after the search has been carried out or they can be saved to user profiles.

188.   Results can be displayed in summary format or other formats such as abstracts view and can be sorted according to data submission or modification date, data source, and substance, compound, and assay ID numbers as well as chemical properties such as molecular weight (Substance and Compound) or bioassay method (BioAssay). Results **can be filtered** according to presence of bioassay information, pharmacological activity or "BioSystem", and depositor category (Substance and Compound) or according to target, bioassay method, related bioassay, and active substance (BioAssay). They can also be filtered for druglikeness according to Lipinski's Rule of Five (Substance and Compound) or type of bioassay, e.g. primary or confirmatory (BioAssay). For all records, links are given to information available from the other PubChem databases (e.g. from Substance to BioAssay data) as well as to external sources such as PubMed Central or organizations from which the data was originally obtained. **Results can be exported** in a variety of formats including XML format from all three databases.

	PubChem Compound	PubChem Substance	PubChem BioAssay
Subject area	Chemistry		
Coverage	Technical reports (more than 61 million)	Technical reports (more than 25 million)	Technical reports (more than 1600)
Content	Bibliographic data; Other (chemical structures, bioactivity data summaries)		
Search operators	*Boolean:* AND; OR; NOT *Wildcard (right truncation):* * (unlimited) *Numeric (date):* : (range)		
Search fields	Creation/deposit date; Modification date; Molecular weight; Hydrogen bond donor/acceptor count; Rotatable bond count; Heavy atom count; Isotope atom count; Tautomer count; Covalent unit count; Complexity rating (Berz/Hendrickson/Ihlenfeldt); Total formal charges; Stereochemistry; Bioassay type; Chemical elements; Database links; Source;		Deposit date; Modification date; Test concentration; On-hold status; Active concentration; Bioassay type; Database links; Substance target; Source; Taxonomy; Source category, etc.

	Document category, etc.	
Search filters	BioActivity experiments; BioMedical annotation; Depositor category	Target; Experimental method; Related BioAssays; Active chemicals
Metadata	Yes. Compound chemical structures	
Language (interface)	English	
Additional tools	- Chemical structure drawing - View related documents - Export results (full document; XML, SDF, ASN1) - View/save session history - Keyword mining tool	- Chemical structure drawing - View related documents - Results grouping - Remove duplicate results - Export results (bioassay data, similarities data, images, clusters) - View/save session history - Graphical results analysis (bioassay data)
User support	Help pages	
Patent data	No	

(v)   PubMed

189.   PubMed incorporates bibliographic data from 5,200 journals in health-related fields including biochemistry, biomedical engineering, botany, nanotechnology, and various fields of medicine. Its content is largely derived from the MEDLINE content set and covers all articles contained in the PubMed Central full-text database. In total, it contains over 19 million records, of which 16 million records belong to the MEDLINE content set.

190.   PubMed offers a basic and advanced command-line search interface, of which both permit the use of basic Boolean operators and searching by field. The advanced command-line search interface allows the use of structured search fields and search filters ("limits"). The filters enable users to limit their results, for example, to records with links to the full-text of the associated article or to those with links to free full-text. The advanced command-line interface also permits **direct access to the search indexes** for each data field, thus facilitating the identification of relevant search terms. Searches carried out using both the basic and advanced command-line search interfaces automatically are expanded as **semantic searches**. Additionally, PubMed makes available a structured search interface permitting searching of bibliographic data ("citation matcher") and several prestructured searches ("topic-specific queries").

191.   Results are sorted by default by date added but can also be sorted by publication date, last name of the first or last author, journal title, and article title. Results also indicate the **availability of full articles** at no cost through PubMed Central. From the results display, **additional filtering** can be carried out using search criteria suggested on the basis of the initial search and related documents available in other NCBI databases including PubChem can be identified. Users can establish **profiles** ("MyNCBI") to save session histories or customized search filters.

Subject area	Instruments; Chemistry
Coverage	Journals (over 19 million articles)
	Books
Content	Bibliographic data; Abstracts (partial)
Search operators	*Boolean:* AND; OR; NOT
	Wildcard (right truncation): * (unlimited)
	Numeric (date): : (range)
Search filters	Full-text/free full-text/abstracts; human/animal; gender; type of article; language; journal type; age; topic (controlled list)
Search fields	All fields; Author name; Author affiliation; First author name; Last author name; Investigator name; Enzyme Commission number; CAS Registry number; Research grant number; Journal issue; Journal name; Journal volume; Language; Record creation date; Page number; Pharmacological action; Publication date; Publication type; Substance name; Text word; Title; Title and abstract
Metadata	MeSH
Language (Interface)	English
Additional Tools	- Semantic search
	- Export results list (RSS)
	- Email/save results records
	- Export results records (bibliographic data or abstract; TXT or XML)
	- View/save search session
	- View search indexes
	- User profiles ("MyNCBI")
User Support	Help pages (English)
Patent Data	No

(vi) PubMed Central

192. PubMed Central is a document repository focusing on health and life sciences. Through PubMed Central, the NIH National Library of Medicine provides free full-text access to over 2 million articles from around 1000 scholarly journals including a significant number of journals belonging to the PCT NPL Minimum Documentation. Not all journals include their full archives back to their earliest issues. Articles from certain journals are also subject to an embargo period of up to 24 months before they become available through PubMed Central. However, once they appear in PubMed Central, many journals are made available under limited or full open-access conditions, that is to say, that they "are made available under a Creative Commons or similar license that generally allows more liberal redistribution and reuse than a traditional copyrighted work."[51]

193. PubMed Central provides basic and advanced command-line search interfaces similar to those found in PubMed, with automatic semantic search, though the searchable fields differ between the two services. Searches previously carried out can be combined to provide a single results set.

194. Results can be sorted by print or electronic publication date, journal title, or their date of addition to PubMed Central. From the record view, users **download full-text articles in PDF format** and view and access **citing documents** and **related articles**. Search sessions can also be tracked and stored to user profiles ("My NCBI").

Subject area	Instruments; Chemistry
Coverage	Journals (899 titles; English)
Journals from PCT NPL Minimum Documentation	Applied Physics Letters; EMBO Journal; Journal of Applied Physics; Journal of Biological Chemistry; Journal of Nutrition; Nucleic Acids Research; Plant Physiology; Proceedings of the National Academy of Sciences of the United States of America; Review of Scientific Instruments
Search operators	*Boolean:* AND; OR; NOT *Wildcard (right truncation):* * (unlimited) *Numeric (date):* : (range)
Search fields	Abstract; Accession; Acknowledgements; Affiliation; All fields; Author; Body (all words); Body (key terms); DOI; Enzyme Commission/CAS Registry number; Electronic publication date; Entrez date; Figure/table caption; Filter; Full author name; Grant number; Journal title; Journal issue; Journal volume; MeSH major topic; MeSH subheading; MeSH terms; Methods (key terms); Organism; Organism (unsynonymized); PubMed Central addition date; Pagination; Publication date; Reference; Reference author; Section title; Substance name; Text words; Title
Search filters	Free/embargoed content; Journal title; Article type; Publication date; PubMed Central addition date; Record with specific field data
Metadata	MeSH
Language (interface)	English
Additional tools	- Semantic search - View forward citations - View related documents (PubMed Central) - Download results records (PDF) - View/save session history - User profiles ("MyNCBI")
User support	Help pages (English)
Patent data	None

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[51] PubMed Central, "PMC Open Access Subset", http://www.ncbi.nlm.nih.gov/pmc/about/openftlist.html (retrieved 23 January 2010).

(e)   Fee-based search services

(i)   Dialog

195.   Dialog is an online database service operated by ProQuest, which encompasses around 600 databases covering subject areas including "Agriculture & Nutrition, Chemistry, Energy& Environment, Medicine & Biosciences, Pharmaceuticals [and] Engineering & Technology."[52] Notable databases include **Beilstein Abstracts and Reactions (chemistry), EMBASE (life sciences), and Inspec (engineering**). These databases contain bibliographic data and, in certain cases, abstracts and full-text from scholarly journals, technical reports, trade publications, newspapers and other sources as well as patent data. In total, the database contains over 470 million documents.

196.   **DialogWeb** provides a menu-based ("one-click") and a command line-based interface for searching the Dialog database content. Both interfaces support basic Boolean operators, proximity operators, and wildcard operators, which can be used for non-simultaneous right and internal truncation. They also permit searching by field in a limited range of fields across all databases and a more extensive set of fields for specific databases. Details on the characteristics of each database including searchable data fields are recorded in so-called "blue sheets".[53] The menu-based interface allows users to select the databases in which to search either by entering the numbers assigned to these databases by Dialog or by narrowing the range of databases according to their subject area. Once the range of databases to be searched has been defined, users can either carry out a search using a number of pre-defined structured search interfaces with fixed search fields (**"targeted search"**) or using a structured search interface with a user-selectable search field and date range (**"dynamic search"**). Unlike the targeted search interfaces, the dynamic search interface permits the use of Boolean, proximity and wildcard operators in the defined search field. Additionally, the dynamic search interface enables a similarities search for author names, company names, journal names, or product names indexed by Dialog and, in specific databases, similarities search by subject term ("thesaurus"). Results from a dynamic search can be refined by adding further search criteria to the initial search. Searches carried out using either the targeted and dynamic search interfaces can be saved to the user's profile or as user-customizable alerts. The command-line interface requires that users select the databases to be searched according to database code and supports the use of Boolean operators, proximity operators, and wildcards as well as field codes. Similarly to the menu-based interface, it allows searches to be saved or exported as alerts.

197.   Results can be sorted according to a number of criteria including author name, document title, and document source. Results can be exported as full records or condensed lists in a variety of formats or sent to users by customizable email or by fax or US mail.

198.   Other Dialog interfaces include Dialog1, a menu-based search interface, and DialogClassic and DialogClassic Web, command-line based interfaces (which allow chemical structure searches). DialogNewsroom and DialogSelect provide access to a limited selection of Dialog databases.

Subject area	Electrical engineering; Chemistry; Mechanical engineering
Coverage	Journals (around 28 000; English)
	Books (from 1900 to present; around 1.3 million; English)
	Technical reports (English)
	Conference proceedings (English)
	Others (annual reports, dissertations, standards, newspapers)
Content	Bibliographic data; Abstracts (partial); Full-text (partial) Other (graphs, tables, charts, and pictures)
Search operators	*Boolean:* AND; OR; NOT
	Wildcard (stackable, right and internal truncation): ? (unlimited, or 1 character if multiple ? are used)

[52] Dialog, "Subject Category Index [All Databases]", http://library.dialog.com/bluesheets/html/bls.html (Retrieved 11 November 2009).

[53] Dialog, "Dialog Online Documentation", http://library.dialog.com/bluesheets/ (Retrieved 11 November 2009)

	Proximity: W (ordered, user-definable); N (unordered, user-definable); S ("subfield", unordered)
Search filters	English language; Records with full-text; Records with abstracts; Records with images; Records with conference information; Records with sales data; Records exceeding 1000 words; Records with focus on United States; Trademarks; Company location
Search fields	Title; Descriptor; Abstract; Company name; Author; Document type; Publication year; Publication date; others (for specific databases)
Language (interface)	English
Additional tools	- Remove duplicate results - Export results lists (Word, Excel, XML, HTML, TXT) - Mail results lists (US mail) - Export results records (Word, Excel, XML, HTML, TXT) - Mail results records (US mail) - View/save session history - Search alerts (email, fax, US mail)
User support	Help pages; Training workshops
Patent data	Yes (144 million records of which 40 million in full-text from 80 patent issuing authorities)

(ii)   **Scopus**

199.   Scopus is an abstract and citation database service provided by Elsevier covering a wide range of subject areas including "Agricultural and Biological Sciences; … Biochemistry, Genetics and Molecular Biology; Business, Management and Accounting; Chemical Engineering; Chemistry; Computer Science; Decision Sciences; Dentistry; Earth and Planetary Science; … Engineering; Environmental Science; Health Professions; Immunology and Microbiology; Materials Science; … Medicine; … Neuroscience; Nursing; Pharmacology, Toxicology and Pharmaceutics; Physics and Astronomy; … Veterinary."[54] Regardless of the original language of the document, all records included in Scopus must also have an English version of the title and abstract, where available. The journal in which documents appear must also be published at least once yearly and must be subject to some type of peer-review process. In total, Scopus covers around 38 million documents, of which around half date from the period between 1823 and 1996 and the other half from 1996 to the present. Around 80 percent of these records include abstracts. Scopus also indexes around 435 million "scientific" web pages and 23 million patent documents from different patent offices.

200.   Scopus offers four search interfaces: a basic (structured) search interface, an advanced search interface, an author search interface, and an affiliation search interface. The basic search interface supports basic Boolean operators as well as searching by field in a variety of fields including: combined article title/abstract/keywords or article title/abstract/keywords/author, authors, first author, source title, article title, abstract, keywords, affiliation, language, ISSN, CODEN publication identifier, digital object identifier (DOI), reference data, conference data, chemical name, and CAS number. It also allows results to be limited to a specified publication date range or date added as well as to a specified document type and set of subject areas. The advanced search interface supports Boolean operators, proximity operators, and wildcards, for right and internal truncation (though not simultaneously), as well as searching by field in the full range of searchable fields covered by Scopus. Searches can be saved to subscribers' accounts or used to create email alerts or RSS feeds.

201.   Search results are displayed on separate tabs for results from Scopus, the Web, patents, and "selected sources" (additional content repositories searched). They can be sorted according to date, relevance, authors, source title and number of citation. Results can be refined by adding further search criteria, and additional filtering can be carried out on the basis of source title, author name, year, document type, subject area, language, affiliation, keyword, or source type. Options for this additional filtering are extracted from the results set.

202.   A major strength of Scopus is its citation tools. These tools include links from particular Scopus records to citing documents from Scopus, the Web, and US, European and PCT patent collections. Scopus also permits users to establish citation alerts to indicate when new citations are made for a particular record or author. Scopus also maintains author and affiliation indexes, integrated into its search interfaces, to allow authors or organizations to be unequivocally identified, in particular in cases of name variations for a single author or organization or in cases where a particular name or set of initials is shared among multiple authors.

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[54] Scopus, "Content Coverage", http://www.info.scopus.com/docs/content_coverage.pdf (Accessed 17 November 2009).

Subject area	Electrical engineering; Instruments; Chemistry; Mechanical engineering; Other fields
Coverage	Journals (around 16,500 titles) Magazines (600 titles) Books (350 series) Conference Proceedings (3.6 million papers)
Content	Bibliographic data; Abstracts (partial)
Search Operators	*Boolean:* AND; OR; AND NOT *Wildcard (right and internal truncation):* * (unlimited); ? (1 character) *Proximity:* PRE ("preceding", ordered, user-definable); W (unordered, user-definable)
Search Fields	All fields; Abstract; Affiliation identifier; Affiliation; Affiliation city; Affiliation city; Affiliation organization; Article identifier; Author identifier; Author name; Author name (expanded); Author name; Author first name; Author last name; Collaboration author; Keywords (author-assigned); Keywords (controlled vocabulary); Trade name; Keywords (author-assigned+controlled vocabulary+Trade name); CAS Registry number; Chemical name; Chemical (CAS Registry number+Chemical name); CODEN number; Conference name; Conference location; Conference sponsors; Conference (Name+Location+ Sponsors); Document type; DOI; Editor first name; Editor last name; Editor name; Electronic ISSN; Print ISSN; ISBN; ISSN; Source title; First author; Funding agency acronym; Funding agency name; Funding agency grant number; Funding agency (Acronym+Name+Grant number); Issue number; Manufacturer; First page; Last page; Pages (First+Last); PubMed Identifier; Publication date (text); Publication year; References author; References title; References source title; References publication year; References page; References (Author+Title+Source title+Publication year+Page); References article identifier; Sequence bank name; Sequence bank accession number; Source title; Subject area; Document title; Volume number; Title+Abstract+Keywords; Title+Abstract+Keywords+Author name
Metadata	Keywords (author-assigned, controlled vocabulary) (partial); Subject area (partial); CAS Registry number (partial); CODEN number (partial)
Language (Interface)	English
Additional Tools	- Additional results filtering - View forward citations (Scopus, web, US patent, EP patent, WO patent applications) - Email/export results lists - Email/export results records (bibliographic data, abstract, full document; HTML) - Download results records (full document; PDF) - Search alerts (email or RSS) - Citation alerts (RSS)
User Support	Help pages; Online help chat
Patent Data	Yes (23 million patent documents from 5 patent authorities)

(iii) STN

203.   STN is an online database service jointly operated by FIZ Karlsruhe and the Chemical Abstracts Service (CAS). It provides access to a broad set of databases, each covering distinct subject areas including "Bioscience, Biotechnology, Business, Chemistry, Energy and Environment, Engineering, Health and Safety, Materials Science, Medicine, Nanotechnology, […] Pharmacology [and] Toxicology".[55] The different databases contain "published research, journal literature, […] structures, stereochemistry, trade names, physical properties, sequences, and other data."[56]

204.   **STN Express** permits **command-line searching** in the full range of over 600 databases covered by STN, including Beilstein Abstracts, Chemical Abstracts Plus, and the Chemical Abstracts Registry (chemistry), BIOSIS (life sciences), and COMPENDEX and INSPEC (engineering). Users can opt to **include only certain databases** in their search, thus narrowing their search to particular subject areas or types of documents. STN Express supports basic **Boolean operators** and wildcard operators, which can be used for **simultaneous left, right, and internal truncation**, as well as a wide range of **proximity operators**. For certain databases an even greater range of operators is supported, including additional proximity operators and **comparison operators** (smaller than, greater than, etc.). **Searching by field** is generally possible using author name, journal title, article title, and article full-text. However, as with operators, individual databases support a much larger set of fields in which searches can be carried out, which must be determined by referring to the documentation for each database. BLAST **similarities search** is possible for nucleotide and protein sequences in the CAS Registry and gene sequence databases. For certain databases, **chemical structure search** and **chemical reaction search** is possible, using a proprietary structure and reaction drawing tool. Specific characteristics of each database including types of searches available, searchable fields, and supported operators are described on individual summary sheets.[57] Pre-defined **search query files can be imported** and **search transcripts can be exported** in order to facilitate automation of searches.

205.   Results are displayed in bibliographic data format sorted by date within each database. **Results can be grouped** according to various criteria such as publication year, author name, and company name, which includes the possibility of similarities grouping. **Customized tables and reports** can be created from results and exported in Excel, RTF, Text, HTML, or proprietary STN Express format, which may include search transcripts, highlighting of search terms or other specified terms, and graphical representations of results data. **Alerts** can be set up to track new records relating to particular search queries.

206.   **STN Easy** allows searching in a more limited set of databases than STN Express. It provides two general search interfaces, namely an Easy Search and Advanced Search interface, as well as a CAS Registry Number search interface, which are available in several languages. The **Easy Search interface** allows basic searching by keywords within specified database categories. It supports basic Boolean operators and wildcard operators, which can only be used for right truncation. The **Advanced Search interface** also allows users to select the category of databases within which to search but additionally permits **searching by field** according to a set of fields determined by the particular database category selected. The **CAS Registry Number search interface** permits search through chemical name or CAS Number to locate results in the CAS Registry. **Search history** allows users to repeat queries already carried out previously.

207.   Results are displayed in a manner similar to STN Express, though none of the post-processing options available in STN Express exist in STN Easy.

208.   Other STN interfaces and tools offered by CAS and FIZ Karlsruhe include **STN Easy for Intranets** and **STN on the Web**, a web-based interface similar to STN Express, and **STN AnaVist** and **STN Viewer**, both of which are designed to allow further analysis and processing of results from STN Express.

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[55] STN International, "STN Content", http://www.stn-international.de/stn_content.html (Accessed 23 October 2009).
[56] Ibid.
[57] See: STN International, "Database Summary Sheets", http://www.stn-international.de/sum_sheets.html (Accessed 9 November 2009).

	STN Express	STN Easy
Subject area	Electrical engineering; Chemistry; Mechanical engineering	
Coverage	Books (English) Journals (500 titles; English) Technical reports (more than 381,000; English) Conference Proceedings (English)	Books Journals Technical reports Conference Proceedings
Content	Bibliographic data; Abstracts (partial); Full-text (partial); Other (chemical structures; chemical reactions; sequences)	
Search operators	*Boolean:* AND; OR; NOT; + ("AND"); - ("NOT") *Proximity:* T ("term", unordered); S ("sentence", unordered); P ("paragraph", unordered); L ("field", unordered); W (ordered, user-definable); A (unordered, user-definable) *Anti-proximity:* NOTW, NOTA *Wildcard (stackable, SLART, internal):* ? (unlimited); # (0-1 character); ! (1 character) *Numeric (date and number):* = ; < ; > ; =< ; >= ; => ; <=; - (range) *Others*: [for specific databases]	*Boolean:* AND; OR; NOT *Wildcard (stackable):* ? (unlimited); # (0-1 character); ! (1 character)
Search fields	Author name; Journal title; Article title; Full-text; others (for specific databases)	
Metadata	CAS Registry Number (for specific databases)	
Language (interface)	English	English, French, Spanish, German, Japanese
Additional tools	- Chemical structure drawing - Import queries - Group results - View/remove duplicate results - Customized tables and reports - View/export session history - Search alerts (internal) - User profiles	- View duplicate results - View session history - View duplicate results - User profiles
User support	Help pages; User guides; e-Seminars; Training workshops; User meetings and forums	
Patent data	Yes	

(iv)　　Thomson Innovation

209.　Thomson Innovation provides subscribers with tools to search, access, and analyze patent and non-patent data. Thomson Innovation's non-patent "Literature Collection" provides the user with access to several science and engineering related databases, specifically Thomson Scientific's proprietary Web of Science, Current Contents Connect, Inspec and Institute for Scientific Information (ISI) Conference Proceedings databases. In total, Thomson Innovation covers over 50 million bibliographic data records, many of which include specialized data such as chemical structures and reactions. Each of the content sets covers different though not necessarily discrete subject areas. Though certain data elements such as document title and author are shared among all content sets, others are distinct to particular content sets, e.g. CODEN publication identifier, serial item and contribution identifier (SICI), and other classifications (available only in Inspec). Furthermore, not all data fields included in particular data sets are searchable, notably abstracts. Finally, though links are provided to document full texts, access to these full texts must be obtained through the respective journal publishers.

210.　For its non-patent literature search, Thomson Innovation offers quick search, fielded search, "cross–search", cited references search and expert search interfaces. All interfaces support the use of basic Boolean operators and most allow wildcard operators, which can be used for simultaneous left, right, and internal truncation. The **quick search interface** allows searching in one content set (e.g. Web of Science) or in all content within available data fields. The **fielded search interface** additionally permits users to search by fields such as author, title, date range, language, and document type, with the possibility of creating additional search fields as required. The **cross-search interface** allows searching for patents, scientific literature and business information simultaneously, with the possibility to search by fields including keyword, applicant/assignee, author, abstract, title, person, and date range. A search using the **cited references interface** will search for articles by cited author, cited work, or cited year. This interface does not permit the use of wildcard operators and is only available for certain content sets, such as Web of Science. The main element of the **expert search form** is the query box where users can enter search strings via command language. Above the query box, collapsible menus display the 'Collections to Search' menu (i.e. Web of Science, Current Contents Connect, ISI Proceedings etc). All the operators available in fielded search are available here, plus several additions, including numerical comparison operators (greater than or equal to, less than or equal to, and equal to). The expert search interface also allows the use of ordered and unordered user-definable proximity operators including SAME (terms must be in the same data field), NEAR, and ADJ. The database also provides an option to **save search history**. Saved queries may be organized into user-created folders.

211.　Users can **customize the displaying of results** by selecting the data fields to be shown. Results can be sorted by author, source, and publication date. **Results can be refined** by adding search criteria to the original query or by filtering according to source, document type, author, and language, with a list of options being given for each filtering type. **Results lists or selections of results lists can be saved or downloaded and emailed** in a variety of formats including CSV, HTML, PDF and text formats. **Customized email alerts** can also be established to monitor results lists associated with a search previously carried out or changes to specific records ("watched records"). Users can also choose the t**ext clustering** option which uses linguistic analysis to create keyword clusters from the text of selected fields in the patent or literature records or **topographical content maps of search results** ("ThemeSpace").

Subject area	Electrical engineering; Chemistry; Mechanical engineering
Coverage	Journals (more than 20,000 titles) Books (2000 titles) Conference Proceedings (from 1990; more than 60,000 conference proceedings; 4.1 million papers) Others (Book reviews, Corrections and additions, Discussions, Editorials, Letters, Meeting abstracts, Notes, Review Papers)
Content	Bibliographic data; Abstracts (partial); Full-text (partial, ISI Proceedings only); Other (chemical structures; chemical reactions)
Search Operators	*Boolean:* AND; OR; NOT *Proximity:* NEAR (unordered, user-definable); ADJ (ordered, user-definable); SAME ("same sentence", unordered) *Wildcard (stackable, SLART):* * (unlimited, or limited, user-definable) *Numeric (date and number):* = ; <> ; > ; < ; >= ; <=
Search Fields	All text; Author; Date; Document type; Language; Organization; Organization address; Publication year; Source; Title; others (for specific databases)
Metadata	Yes (Inspec classification for Inspec only)
Language (Interface)	English, Japanese
Additional Tools	- Machine translation - Stemming - Email/save results list - Export results list (BizInt Smart Charts, CSV, HTML, PDF, TSV, TXT, RIS, RTF, XML) - Results text clustering - Graphical results and citation analysis - Save session history - Search alerts (internal or email) - User profiles
User Support	Help pages; Online user guides; Training workshops
Patent Data	Yes

(f) Free-of-charge journal databases

(i) Directory of Open Access Journals

212. The Directory of Open Access Journals provides a list of journals that meet criteria for open access laid out in the Budapest Open Access Initiative of allowing individuals and institutions to "read, download, copy, distribute, print, search, or link to the full texts of … articles" at no charge and without any embargo period. Additional criteria include the presence of a peer-review or editorial review process, that the content of the journal be "primary results of research or overviews of research results" and that the journal appears periodically over an indefinite period and have an ISSN number assigned to it.[58]

213. The Directory covers a wide range of subject areas in over 4300 journals, which are available in wide variety of languages including Chinese, English, French, Japanese, Portuguese and Spanish. In certain cases, journals are available in multiple language versions. Though the Directory is primarily a gateway to the journal titles it lists, it is in the process of establishing a repository of the journals it covers through the e-Depot digital archive.

214. DOAJ offers a basic search interface and an advanced search interface. The basic search interface permits searching in the journal title field only, where multiple search terms are automatically treated as phrases. Users can also browse by journal title and subject area. The advanced search option allows the use of basic Boolean operators and searching by journal title, ISSN, journal and article keyword, article title, author name, and abstract. However, only a limited number of journals support article-level searching, i.e. by article title, author name, abstract, and article keyword. Journal and article bibliographic data and metadata, including article title, author name, publisher name, keywords, and subject area data, can also be accessed in a standardized format using the Open Access Initiative (OAI) protocol.

215. DOAJ offers an option of browsing "New Titles", where users can find the most recently added journals. The list is automatically updated and shows by default the journals which have been added during the last 30 days.

Subject area	Electrical engineering; Instruments; Chemistry; Mechanical engineering; Others
Coverage	Journals (over 4300 titles; over 300,000 articles; English, Spanish, Portuguese, French, Chinese, Japanese and others)
Content	Bibliographic data
Search operators	*Boolean:* AND; OR; NOT
Search fields	Article title; Article full-text; Journal title; Author name; ISSN; keywords; Abstract
Search filters	Author name; Source of publication; specific collections
Metadata	Keywords (journal and article); subject area (journal and article)
Language (interface)	English
Additional tools	View session history
User support	Help pages
Patent data	None

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[58] Directory of Open Access Journals, "FAQ", http://www.doaj.org/doaj?func=loadTempl&templ=faq (Accessed 28 October 2009).

(ii) SciELO

216.   The Scientific Electronic Library Online (SciELO) is an electronic library covering a selected collection of scientific journals from Brazil and other Latin American and Caribbean countries, Portugal and Spain. It is a "virtual library, providing full access to a collection of serial titles, a collection of issues from individual serial titles, as well as to the full text of articles."[59] The criteria for inclusion of journal titles take into consideration the previous evaluations that these journals have taken part in including their rating in selected international indexes as well as other factors such as the presence of a peer-review process and an editorial board, a specific frequency of publication and minimum lifetime, and availability of English versions of titles, abstracts, and keywords.[60] As a result of the latter criterion, all titles, abstracts, and keywords are searchable in the original article language or in English.

217.   SciELO is **fully available in English, Spanish, and Portuguese** and offers **two general search interfaces**. Both general search interfaces permit searching using basic Boolean operators across all SciELO content or within a particular collection, national or thematic (i.e. in the public health or social sciences collection). Furthermore, SciELO allows **searching with specific journals**. The first general search interface offers the option to search for articles by word or phrase in the country, author, keyword, title, organization, publication year, document type, and original language fields (either simultaneously or separately). It also permits **similarities searching** (searching by "lexical proximity"). Users can also **browse journals by title, subject area, or publisher**. The second general search interface allows searching by "all indexes" or by article title, author, or abstract. It also permits **filtering by subject area, journal, publication year, original language, and collection**. Within specific journals, users can search articles by author or subject, or they can search using basic Boolean operators by article title, abstract, author name, subject area, and publication year and, for certain journals, author affiliation and author country.

218.   By default search results are sorted according to relevance. But results may also be sorted by year and SJR index (a citation index[61]). Results lists can be emailed, exported in XML format, or tracked as RSS feeds. Individual results can be previewed in HTML format or viewed and downloaded in text or PDF format. RSS feeds may also be established to track new articles published in specific journals or new articles or journals added to SciELO as a whole. Users who have registered for free may also establish article and links lists ("My Collection" and "My Links"), track new articles in specific subject areas and subfields ("My Profiles"), or monitor RSS feeds ("My News" and "My Alerts").

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[59] SciELO Spain, "SciELO – Scientific Electronic Library Online", http://scielo.isciii.es/scielo.php?lng=en (Accessed 22 October 2009).

[60] See: SciELO, "SciELO Criteria: criteria, policy and procedures for admission and permanence of scientific journals in the SciELO collection, October 2004 Version", http://www.scielo.org/php/level.php?lang=en&component=42&item=2 (Accessed 22 October 2009).

[61] See: SciImago, "SJR: Journal Indicators", http://www.scimagojr.com/journalrank.php (Accessed 29 October 2009).

Subject area	Electrical engineering; Instruments; Chemistry; Mechanical engineering; Others
Coverage	Journals (over 640 titles; over 205 000 articles; English, Spanish, Portuguese) Citations (over 4 million records)
Content	Bibliographic data; Abstracts (English, Portuguese, Spanish); Full-text (English, Portuguese, Spanish)
Journals from PCT NPL Minimum Documentation	None
Search operators	*Boolean:* AND; OR; NOT
Search fields	Article title; Article abstract; Article full-text; Journal title; Author name; Keywords; Publication year
Search filters	Subject area; Journal; Publication year; Language; Collection; document type (serial/article/journal);
Metadata	Subject area (journal); Keywords (article)
Language (interface)	English, Spanish, Portuguese
Additional tools	- Email results list - Export results list (XML or RSS) - View session history - Google Scholar search - User profiles
User support	Help pages
Patent data	None

(g)   Fee-based journal databases

(i)   American Chemical Society

219.   Through its publications site, the American Chemical Society (ACS) allows searching of and, for subscribers, access to articles from more than 30 of its journals and magazines in the field of chemistry as well as titles from its ACS Symposium Series and Advances in Chemistry series. This content covers a significant proportion of the titles in the field of chemistry in the PCT NPL Minimum Documentation.

220.   ACS provides a basic search interface and an advanced search interface as well as options to **directly access specific articles or serials** through its citation search interface and DOI (digital object identifier) interface. The **basic search interface** supports basic Boolean operators, phrases, and wildcard operators (though wildcards cannot be used with phrases). It permits **searching by field** in full-text or in document and publication title, author name, or abstract. The advanced search interface allows combined searching in all these fields as well as in figure/table captions, within specified web or print publication dates, and in specified journals or book series. It also permits search term stemming. For both the basic and advanced search interfaces, ACS offers an option whereby users can track and save their past searches through their **session history** accessed through the results view.

221.   Search results are shown on separate tabs for all results, research, news, features, and commentary, and general information and can be sorted by relevance, date of publication, manuscript type, publication title or first author's last name. Results can be **filtered by content type** (book chapter or journal article), **publication, manuscript type, author name, or date range** (last week/3 months/6 months/year). Furthermore, results can be filtered to show only "Just Accepted" manuscripts that have not yet undergone technical editing or formatting for publication, which are made available to the public within 3 days of their acceptance for publication. Users can also **export results as RSS feeds** or **download bibliographic data (citations)** from selected search results

Subject area	Chemistry
Coverage	Journals (from 1879; 34 titles; English)
	Books (from 1974 with select books from 1905; 1,200 titles; English)
	Magazines (from 1998; 1 title; English)
Content	Bibliographic data; Abstracts; Full-text
Journals from PCT NPL Minimum Documentation	Applied Chemistry and Chemical Engineering, Chemical Abstracts, Biochemistry, Chemical and Engineering News, Industrial and Engineering Chemistry Research, Macromolecular Chemistry, The Journal of Organic Chemistry
Selected Journals of Note	Accounts of Chemical Research, ACS Nano, Chemical Research in Toxicology
Search operators	Boolean: AND; OR; NOT; + ("AND") ; - ("NOT") ; & ("AND")
	Wildcard (right and internal truncation): * (unlimited); ? (1 character)
Search fields	Abstract; All fields; Author name; Document title; Issue number; Publication name; Publication year; Subject term; Title; Volume; Figure/Table Captions
Search filters	Author name; Manuscript Type; Date Range; Publication/Book Series; "Just Accepted Manuscripts"
Metadata	No (CAS Registry only)
Language (interface)	English
Additional tools	- Stemming
	- Export results list (RSS)
	- Download results records (bibliographic data, abstract, references; RIS)
	- View session history
User support	Help pages
Patent data	No (CAS Registry only)

(ii)   IEEE Xplore

222.   IEEE Xplore provides access to journals, conference proceedings, books, and standards published by the Institute of Electrical and Electronics Engineers (IEEE) and the Institution of Engineering and Technology (IEE). The content covers a significant proportion of the titles in the field of electrical engineering in the PCT NPL Minimum Documentation. In total, the database contains over 2 million documents.

223.   IEEE Xplore provides a basic search interface and a citation search interface, which are accessible to the public, and a structured advanced search interface, a free-text advanced search interface, **author search,** and a CrossRef search, which are accessible only to subscribers. The **basic search interface** supports basic Boolean operators (AND, OR, NOT). For non-subscribers, the basic search interface allows combined searching only in the document title, publication title, author name, abstract, index, and affiliation fields, while subscribers can additionally search simultaneously in the full-text. The **citation search interface** permits users to carry out searches by field in the publication title or ISSN/ISBN fields, the document title, author name, publication year, volume, issue, and start and end page fields. The **structured advanced search interface** also supports only basic Boolean operators but additionally permits field searching in a limited number of fields (full-text, document title, author name, publication title, abstract, index terms, and affiliation). The structured advanced search interface permits filtering according to publication type and date of publication. The **free-text advanced search interface** supports a wide range of operators, including diverse proximity operators (NEAR, PARAGRAPH, SENTENCE, PHRASE), relational operators (ORDER), as well as truncation and similarities searches, in additional to allowing field searching in a broad range of fields. These fields include metadata fields, namely index terms and CODEN designations (the latter being used to classify serial and non-serial titles). Both advanced search options permit search results to be refined by adding additional keywords to the search. The **CrossRef search** allows users to simultaneous search content from IEEE but also from other publishers participating in the CrossRef Search Pilot program.[62] Subscribers can track and save their past searches through their **session history**.

224.   Search results can be sorted by relevance, date of publication, or document title. Results include **backwards citations** ("References") and **forward citations** ("Citing Documents") that are accessible only to subscribers. Subscribers also have the possibility to **download bibliographic data** from their search results.

Subject area	Electrical engineering
Coverage	Journals (from 1988 with select content back to 1913; English) Books (from 1974; English) Magazines (from 1988; English) Conference proceedings (from 1988 with select content back to 1953; English) Others (Standards, from 1948, English; Transactions; Letters; Technical surveys; Educational courses)
Content	Bibliographic data; Abstracts; Full-text
Journals from PCT NPL Minimum Documentation	IEEE Electron Device Letters; IEEE Journal of Quantum Electronics; IEEE Journal of Solid State Circuits; IEEE Spectrum; IEEE Transactions on Aerospace and Electronic Systems; IEEE Transactions on Biomedical Engineering; IEEE Transactions on Components and Packaging Technology; IEEE Transactions on Communications; IEEE Transactions on Computers; IEEE Transactions on Consumer Electronics; IEEE Transactions on Electron Devices; IEEE Transactions on Instrumentation and Measurement; IEEE Transactions on Microwave Theory and Techniques; IEEE Transactions on Nuclear Science; IEEE Transactions on Signal Processing; IEEE Transactions on Ultrasonics, Ferroelectrics and Frequency Control; WESCON Conference Proceedings
Search operators	*Boolean:* AND; OR; NOT

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[62] See: CrossRef, "CrossRef search", http://www.crossref.org/crossrefsearch.html

	Proximity: PARAGRAPH (unordered); SENTENCE (unordered); PHRASE (unordered); NEAR (unordered); ORDER (ordered) *Wildcard (stackable, SLART):* WILDCARD (unlimited); STEM; WORD; * (unlimited); ? (1 character) *Other:* MANY (ordering by frequency); THESAURUS (synonyms)
Search fields	Abstract; Affiliation; All fields; Author name; Catalog number; CODEN designation; Conference date; Document title; Editor name; Full-text; Index term; ISBN; ISSN; Issue number; Issue part number; Meeting date; Part number; Publication name; Publication year; Subject term; Title; Volume
Search filters	Author name; Source of publication; Collection
Metadata	Index term, CODEN designation, INSPEC accession number
Language (interface)	English
Additional tools	- Download results list - View session history
User support	Help pages
Patent data	None

(iii)   ScienceDirect

225.   ScienceDirect provides access to full-text articles of a large amount of scientific journals and books. It covers a substantial number of titles from the PCT Minimum Documentation in particular in the fields of biomedicine and chemistry, including Tetrahedron, Biochimica et Biophysica Acta, Cell, and Gene. In total, ScienceDirect provides online access to over 9 million articles.

226.   ScienceDirect provides a basic search interface, an advanced search interface, expert search interface. The **basic search interface** allows users to search by all fields, journal/book title, author name, volume, issue, and page number but only supports the use of the AND operator and phrases. The **advanced search interface** supports basic Boolean operators (AND, OR, AND NOT), phrases, and filtering by publication type, date, and subject area and permits subscribers to search in a limited range of fields (all fields; abstract, title, and keywords; authors; "specific author", source title, title; keywords; abstracts; references; ISSN, ISBN, affiliation, and full-text). Subscribers can also restrict search to their list of subscribed and favorite sources. The **expert search interface** permits the use of Boolean operators and phrases as well as proximity and wildcard operators. Users can search by a wide range of fields using field codes. The advanced and expert search interfaces also allow subscribers to determine whether they want to search only in the titles to which they have subscriptions or in all titles.

227.   Search results can be sorted by relevance or date of publication. Results can also be refined to **'limit to'** or **'exclude'** particular content, filtering by content type, journal/book title, or year or by carrying out a search in the results. Subscribers also have the possibility to **download bibliographic data** from their search results. They also have the option to **open previews of all articles** which displays the abstracts, figures/tables or references of each result.

228.   Subscribers can track and save their past searches through their **session history**. It also allows subscribers to set up **email alerts** based on specific search queries. Any user can also search through a list of the most downloaded articles ("Top-25 Hottest Articles").

Subject area	Electrical engineering; Instruments; Chemistry; Mechanical engineering; Other (civil engineering)
Coverage	Journals (2600 titles; over 9.8 million articles; English) Journals (from 2005; 50 titles; Spanish) Journals (46 titles; French) Books (10,500 books; English) Conference proceedings (from 2001; 8 titles; English) Magazines (from 2006; 1 title; English)
Content	Bibliographic data; Abstracts; Full-text
Journals from PCT NPL Minimum Documentation	BBA Biochimica et Biophysica Acta; Biochemical and Biophysical Research Communications; Cell; Gene; Journal of Chromatography; Journal of Crystal Growth; Journal of Ethnopharmacology; Journal of Organometallic Chemistry; Metal Finishing; Methods in Enzymology; Optics Communications; Philips Journal of Research; Phytochemistry; Solid-State Electronics; Steroids; Tetrahedron; Tetrahedron Letters; Thin Solid Films
Search operators	*Boolean:* AND; OR; NOT *Proximity:* W (unordered, user-definable); PRE (ordered, user-definable) *Wildcard (stackable, SLART):* * (unlimited); ? (1 character) *Numerical (dates):* < ; > ; =
Search fields	Abstract; Non-English abstract; Stereo chemistry abstract; Affiliation; All fields; Author name; "Specific author"; Author first name; Author last name; Affiliation; Keywords; Author keywords; Other keywords; Conference date; Document title; Document type; DOI number; Full-text; ISBN; ISSN; Issue number; Publication name; Publication date; Subject term; Title; Non-English title; Table of contents; Volume and/or Issue; Page; First page; Last page; References

Search filters	Date; Subject area; Publication type; Favorite sources; Subscribed sources
Metadata	Subject area (journal)
Language (interface)	English
Additional tools	- View forward citations - Download selected results (bibliographic data only) - View session history - Search alerts (email or RSS) - Citation alerts (RSS) - Most downloaded articles ("Top-25 Hottest Articles")
User support	Help pages; Online tutorials (English; French; Spanish; Chinese; Portuguese; and others); Quick Start Guide
Patent data	None

(iv) SpringerLink

229. SpringerLink provides the possibility to search and obtain paid access to the full text of journal articles, books, and other publication types covering a wide range of subject areas. These subject areas include: Architecture and Design; Behavioral Science; Biomedical and Life Sciences; Business and Economics; Chemistry and Materials Science; Computer Science; Earth and Environmental Science; Engineering; Humanities, Social Sciences and Law; Mathematics and Statistics; Medicine; Physics and Astronomy; and Professional and Applied Computing. SpringerLink includes a substantial number of titles in the fields of chemistry, electrical engineering, and instruments from the PCT NPL Minimum Documentation. In total, the database contains more than 4 million documents.

230. SpingerLink provides a structured search interface and a free-text search interface. Both search interfaces support basic Boolean operators (AND, OR, NOT) as well as wildcard operators, phrases, and nesting (to clarify ambiguous search syntax). The **structured search interface** allows combined searching in all text or field searching by document title, document abstract, author name, editor name, ISSN, ISBN and DOI and by date range. The **free-text search interface** supports a similar range of search fields (with the exception of editor name) but does not permit date range search. From the free-text search interface, it is also possible to browse publications by content type, subject area, or "featured collection".

231. Search results can be sorted by date of publication, document title, type of document and author name. From the results view, it is possible to **narrow results** by adding additional search criteria or by applying **filtering by content type, language, date of online publication ("SpringerLink date"), copyright date, author, and content status** (i.e. by accepted manuscript or published document). Subscribers can track and save their past searches by marking items in their **session history**. It also allows for **emailing, exporting and saving search results** in a variety of formats (including Excel spreadsheets with customized content) as well as for the creation of **subscriber alerts**.

Subject area	Chemistry, Electrical engineering; Instruments
Coverage	Journals (from 1997; over 2,000 titles; English)
	Journals (over 85 titles; Chinese)
	Journals (over 80 titles; German)
	Books (over 1080 series; over 36,000 titles; English)
	Conference proceedings
	Others (Protocols)
Journals from PCT NPL Minimum Documentation	JOM; Optics and Spectroscopy / Optika i spektroskopiâ; Polymer Science (Series A) / Vysokomolekulârnye Soedineniâ, Seriâ A; Polymer Science (Series B) / Vysokomolekulârnye Soedineniâ, Seriâ B; Russian journal of applied chemistry / Žurnal prikladnoj himii; Russian Journal of General Chemistry / Žurnal obsej himii; Semiconductors / Fizika i tehnika poluprovodnikov; Technical Physics Letters / Pis'ma v Zurnal Tehniceskoj Fiziki; Russian Journal of Organic Chemistry / Zurnal organiceskoj himii
Search operators	*Boolean:* AND; OR; NOT
	Wildcard (right truncation): * (unlimited); ? (1 character)
Search filters	Author name; Source of publication; Publication date; Language; Document type; Subject area
Search fields	Abstract; All fields; Author name; Document title; DOI; Editor name; ISBN; ISSN; Publication name; Title; Publication date
Metadata	Subject area (journal)
Language (interface)	English, French, Russian, Spanish, Chinese, Arabic, German, Japanese, Korean
Additional tools	- Email/save results list
	- Download results list (Excel, TXT, RIS)
	- View session history
	- Search alerts (RSS)
User support	Help pages

| **Patent data** | None |

(v)   Wiley InterScience

232.   The Wiley InterScience website provides access to full-text journals, reference works, books, and databases in the fields of "Chemistry, Earth and Environmental Science, …, Information Science and Computing, … Life Sciences, Mathematics and Statistics, Medical, Veterinary and Health Sciences, Physics and Astronomy, [and] Polymers and Materials Science"[63]. The content covers a significant proportion of the titles in the field of physics in the PCT NPL Minimum Documentation. It contains around 3 million documents in total.

233.   Wiley InterScience provides a basic search interface, an advanced search interface, and a CrossRef/Google Search interface to locate requisite journals and articles. Users can also **browse journals by subject area**. The **basic search interface** supports **basic Boolean operators** (AND, OR, NOT) as well as **wildcard operators**, which can be used for simultaneous left, right, and internal trunctation. Search can be conducted by publication title or in all content of the database. The **advanced search interface** also supports **basic Boolean operators** and **wildcard operators** but also **proximity operators**. Users can specify up to three search expressions for different data fields including article title, publication title, full-text/abstract, author name, and keyword, which may be combined by selecting "AND," "OR," and "NOT " from accompanying drop-down menus. Searches can further be limited by publication type and date range. When viewing any journal, online book, reference work, database or Current Protocols technical manual, the user can choose to search content only within that specific title in all fields or by article title, author, full-text/abstract, author affiliation, keyword, funding agency, reference, or article DOI or jump directly to a particular section of a journal by entering the desired volume, issue, and page number. **Results sorting** can be done by relevance (match percentage), date, or publication title.

234.   The CrossRef/Google Search interface permits searching across all content from Wiley and other scholarly publishers participating in the CrossRef program.[64] This interface permits the use of the same operators as Google itself, i.e. Boolean operators but not wildcard operators. Results are returned from Google using the Google search and ranking algorithms, and using the article's DOI whenever possible to link from the search results to the published article.

235.   For the basic and advanced search interfaces, subscribers can track and save their past searches through their **session history**. **Citation export** functionality will allow any user to download the citation and abstract for journal articles and book summaries. **Citation tracking** allows any user to track where an article has been cited in other online content via links within the article content. Wiley InterScience also provides links on some pages of relevant journals that allow direct access to articles for authenticated users of services such as Highwire, articles archived on hosting services such as JSTOR, or correspondence websites and blogs. An **Acronym Finder** is made available to help find acronym definitions. Acronyms can be searched for exact matches, matches at the beginning of terms, or wildcard matches, and results can be limited according to specific definition keywords or particular subject areas.

Subject area	Chemistry; Mechanical Engineering; Electrical Engineering; Other
Coverage	Journals (from 1982; from 18th century for selected titles; 1500 titles; English, German) Books (7000 titles; English, German) Others (reference works; technical manuals)
Content	Abstracts; Full-text; Others (chemical structures; chemical reactions)
Journals from PCT NPL Minimum Documentation	Angewandte Chemie, Bell Labs Technical Journal, Chemie-Ingenieur-Technik, European Journal of Inorganic Chemistry, European Journal of Organic Chemistry, Phytotherapy Research
Selected Journals of Note	Green Fluorescent Protein, African Journal of Ecology, Agricultural Economics
Search operators	*Boolean:* AND; OR; NOT; , ("OR")

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[63] Wiley InterScience, "Home", http://www3.interscience.wiley.com/cgi-bin/home (Retrieved 3 November 2009)
[64] See: Crossref.org, "Publishers and Societies", http://www.crossref.org/01company/06publishers.html

	Proximity: NEAR (unordered, user-definable); NEXT (unordered; non user-definable)
	Wildcard (stackable, SLART): * (unlimited); ? (1 character)
Search fields	Publication title; Article title; Author name; Author affiliation; Full-text/Abstract; Keyword; Date; Document type; Funding agency; ISBN; ISSN; DOI; others (for specific databases)
Search filters	None
Metadata	Yes (CAS Registry number; for specific databases)
Language (interface)	English
Additional tools	- Export citations
	- View session history
	- Search alerts (email)
	- Citation alerts (internal)
	- New article alerts (email)
	- Acronym finder
User support	Help pages
Patent data	Yes

(h)   Access to Research for Development and Innovation (aRDi) and related services

236.   The Access to Research for Development and Innovation (aRDi) program was launched by the World Intellectual Property Organization together with its partners in the publishing industry with the aim to increase the availability of scientific and technical information in developing countries.[65] By improving access to scholarly literature from diverse fields of science and technology, the aRDi program seeks to:

−   reinforce the capacity of developing countries to participate in the global knowledge economy; and

−   support researchers in developing countries in creating and developing new solutions to technical challenges faced on a local and global level.

237.   Thus, it aims to contribute to the fulfillment of the objectives of the WIPO Development Agenda and to "facilitating the national offices of developing countries, especially LDCs, as well as their regional and sub-regional intellectual property organizations to access specialized databases for the purposes of patent searches", as called for in Recommendation 8 of the Development Agenda.

238.   Within the framework of the aRDi program, academic and research institutions and intellectual property offices in least-developed countries as defined by the United Nations may apply for free access to the journals made available through the aRDi program. Intellectual property offices in other developing countries may obtain access to these journals for a nominal fee. At the time of writing, the aRDi program provides access to 50 journals from the PCT NPL Minimum Documentation for 107 developing countries in cooperation with 12 major publishers including the American Institute of Physics, Elsevier, John Wiley & Sons, National Academy of Sciences, Oxford University Press, Royal Society of Chemistry, Sage Publications, Springer Science+Business Media, and Taylor & Francis.

239.   The aRDi program has been developed in close cooperation with similar programs already established by the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO), and the United Nations Environment Programme (UNEP).

240.   The HINARI program, established by the World Health Organization, was developed in the framework of the Health InterNetwork, introduced by the United Nations' Secretary General Kofi Annan at the UN Millennium Summit in the year 2000. The HINARI Programme enables health institutions in 107 developing countries to gain access to over 6400 journal titles in biomedical and health fields.

241.   The Access to Global Online Research (AGORA) program, set up by the Food and Agriculture Organization of the United Nations in 2003, enables not-for-profit national academic, research or government institutions in agriculture and related biological, environmental and social sciences located in developing countries to gain access to a collection over 1270 journals in the fields of food, agriculture, environmental science and related social sciences.

242.   The Online Access to Research in the Environment (OARE) program, launched in 2006 by the United Nations Environment Programme (UNEP), enables public institutions and all local non-governmental organizations in 100 developing countries to gain access to over 2,990 peer reviewed journals.

[End of Technical Document]

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[65] For more information about the aRDi program, please refer to http://www.wipo.int/ardi