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COMPUTER PATENT DATABASES AS THE SOURCE OF SCIENTIFIC AND TECHNICAL INFORMATION

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Abstract: The article presents the specificity and the content of patent literature. It describes the structure of the patent documentation, possibilities of access to the scientific and technical, legal and economical information which that literature contains, and possibilities of using this information. The article mentions the most important international standards used in patent publications, recomended by World Intellectual Property Organization. It also presents the types of computer patent databases and the most important bibliographic and full text databases accessible on CD-ROM and on-line, and also the specialistic publishers and commercial opperators accesing patent information.

1. Specific character of the patent information

The patent information is a specialized domain of special importance because of its extensiveness, topicality and contents. This information is of unique consequence in the world of science and industry because it is not only the best source of scientific and technical information but also the richest source of legal and economic information in the area of people's creative activities.

In the opinion of experts from STN International (The Scientific and Technical Information Network), the firm offering on-line tens of various databases, only about 5 to 10 % of the information found in the patent literature is published elsewhere and it is published much later. However, 85 to 90 % of the technological knowledge published all over the world is available in patent literature.

The patent information contains, first of all, publications of national patent offices and international organizations that refer to all patent applications and granted patents. There are official bulletins in which these offices include summary information and, as well, full specifications of such solutions like: inventions, designs, utility models, trademarks. There are also national and international legal regulations and methodical publications related to industrial property protection published by patent offices and by international organizations, especially World Intellectual Property Organization which is the initiator and coordinator of every activity in this field.

The exceptional value of the patent information is the result of the novelty requirement for patentable inventions because any public disclosure before filing an application makes the patent protection impossible for anybody. Research and development works results are therefore first filed at the patent office in order to secure priority. These patent applications are usually publicated after 18 months. Thus the information about new solutions is presented at the earliest in the patent literature. All these solutions compose the state of the art even if they are not realized.

Both application documents and patent specifications have exactly specified contents as follows:

- bibliographic data;
- prior art description;
- nature of the invention description;
- examples of the realization and use with drawings usually;
- claims which define a scope of protection.

It is estimated that above one milion of new applications are filed every year in patent offices all over the world and thus patent information recources increase very quickly. People's unaquaintance of the patent literature causes doubling of works and as a result of this unnecessary costs or inappropriate spending money.

Various classification systems make getting information which is researched easier. Because of the big amount of information collections and big single document minuteness of detail, special separate classification systems were created for patent information in different countries.

In order to simplify using the world patent information resources, intensive activities for classification unification and patent document form standarization have been carried and coordinated by WIPO for many years.

The full text of the first edition of International Patent Classification (IPC) was published on 1.10.1969. Then on 7.10.1975 Strasbourg Agreement concerning IPC was legalized. It authorized the use of this classification. At present above 70 patent issuing organizations use the International Patent Classification and it is estimated that 90 % documents published in the world have symbols from this classification. Every five years the new edition of IPC is introduced to include the science and technology development and technological progress. Since 1.01.1995 the sixth edition of International Patent Classification (Int.Cl.6) is obligatory.

Apart from International Patent Classification many international standards which unify patent documents form were introduced. Most important for the user are the following:

- WIPO St.3 Recommended Standard Two-Letter Code for the Representation of Countries and of Other Entities and International Organizations Issuing or Registering Industrial Property Titles;

- WIPO St.16 Standard Code for Identification of Different Kinds of Patent Documents;
- WIPO St.9 Recomendation Concerning Bibliographic Data on and Relating to Patent Documents.

Special significance for increasing the searching efficiency and also for computer databases creating has the unification of title page of patent description which contains bibliographic information together with abstract or claim and drawing.

The patent literature can be exploited as the source of the following kinds of information:

- scientific and technological;
- legal;
- commercial and economic.

This information is a particulary valuable source for the study of the recent state of technological development and for the examination of new solutions in all fields of technology, and also in medicine and genetic engineering. This is why the patent information should be the basis of every research and development works planning, to initiate searching of new solutions and to avoid doubling. As the source of legal information patent literature provides data about application dates, publication dates, patent granting dates, present legal status, "the patent family" and also inventors, applicants and patentees. Very useful feature of patent literature, especially computer bases, is that it can be used for making varied analisis and statistics which are helpful in planning tasks, following competitors activity, studying other companies' experience, strategy and their policy in new solutions protection and also searching for potential cooperation of partners or licensors.

Analyses of the patent literature can be employed for early recognition of technological trends and legal status in different countries. They also can be useful for managers, marketing experts, at making business plans, carrying out new products and searching for new markets.

2. Making patent information accessible

The access to the patent information is secured above all by national patent offices libraries and the network of regional patent information centres. The patent information collecting, transforming and accesing occupy also specialistic publishers and comercial opperators — on-line hosts, among which most popular are the following: Derwent Publications Ltd., Wila-Verlag, Bertelsmann InformationsService, STN International, Questel-Orbit, Knight-Ridder Information (DIALOG), MicroPatent.

In 1972 in Vienna the International Patent Documentation Center (INPADOC) was created. It was the organization founded by a states treaty between WIPO and the Republic of Austria. INPADOC started, among others, creating the first computer database which contains the bibliographic information about patent applications and

granted patents in several countries. Standarized data from national patent offices and international organizations about their publications are supplied to INPADOC and they are introduced to this bigest world bank of patent information. From this center the patent information is transmited to national patent offices, which can create their own local patent databases. In 1992 after the integration of INPADOC into the EPO (European Patent Office) European Patent Information and Documentation Systems (EPIDOS) was created. It is of great weight in organizing and coordinating all activities in the field of patent information collecting, outputting and propagation.

At the beginning the basic carrier of the patent information was paper. In the sixties microfilms and microfiches were used for this purpose. Data was delivered to INPADOC on magnetic tapes and later on floppy discs. Since mid eighties more and more often CD-ROM disks were used for collection, propagation and exchange of patent information. CD-ROMs altogether totally replaced microfilms and mikrofiches and progressively they eliminate paper and become the basic carrier especially for information based on authority that are complete patent specifications.

For example, Polish Patent Office acquired:

	on paper	on CD-ROMs
1991	~ 570 000 documents	~ 370 000 documents
1994	~ 250 000 documents	~ 970 000 documents

The highest degree of automatization of facilitating public access to the information contained in patent documents was achieved by the United States Patent and Trademark Office, European Patent Office and Japanese Patent Office.

3. Patent databases on CD-ROMs

Patent databases on compact discs can be classified in two categories:

- bibliographic databases,
- full text databases.

The most important bibliographic bases are the following:

ESPACE-ACCESS: contains bibliographic data from all European and PCT (Patent Cooperation Treaty) patent applications and abstracts in English-language;

ESAPCE-BULLETIN: comprises bibliographic and procedural data for all European patent applications;

PATOS: German publications of inventions and utility models since 1983;

APS/CAPS/USPS: bibliographic data including the abstracts of the American patents since 1969;

PAJ: the collection contains the first pages (bibliographic data, abstract) of the Japanese patent applications in English-language since 1976.

Bibliographic databases enable searching under a lot of different criteria, both single and combined like this: classification symbol, filing date, application number, publication number, applicant, inventor etc. Searching result can be obtained as a list or collection of bibliographic data for each document found. Bibliographic bases contain also very useful cross-references to other discs: for each document in bibliographic base the name and the number of a full text disc are indicated.

Among the full text discs, usually in a facsimile format, first of all should be mentioned:

ESPACE-WORLD: all patent applications published by the World Intellectual Property Organization under the PCT;

ESPACE-EP-A: all European patent applications since 1978 in the format of the original documents;

ESPACE-EP-B: all European patents granted since 1980 in the format of the original documents;

ESPACE-PRECES: patents from the Region of Eastern and Central European States since 1993, also Polish patents from number 153900;

COSMOS: French full text applications since 1992, from number 2663812.

On CD-ROM discs there are also full text publications of the majority of European national patent offices and also US, Latin America, ASEAN (Association of Southeast Asian Nations) and this collection is growing all the time.

Remarkable are ESPACE-FIRST discs which contain first pages from all European and PCT applications in a facsimile format.

4. On-line patent databases

There are many different on-line commercial and non-commercial databases. The most important are the following services:

• *INPADOC-EPIDOS databases*:

PFS (Patent Family Service) groups patent documents with at least one priority claim in common and provides the bibliographic data of these documents; it contains more than 25 milion documents since 1968 from about 60 countries and 4 regional organizations;

PRS (Patent Register Service) — the legal status database with more than 34 milion documents from about 20 countries and 2 regional organizations since 1978; both services are weekly updated and available as different implementations of INPADOC databases on four commercial hosts: STN International, Orbit-Questel, Knight-Ridder (Dialog), Japio; INPADOC is the most comprehensive world's patent database;

• *Derwent World Patent Index*

this base provides information on patent publications from the 31 most important industrialized countries of the world, from the European Patent Office (EPO) and from the World Intellectual Property Organization (WIPO);

the records in the database describe patent families — the first application (Basic Patent) and adding information about the same invention isuued in other countries (Equivalents) and contain bibliographic data, drawings and Derwent-assigned titles and abstracts in English-language;
Derwent World Patent Index is offered by STN, contains more than 6 milion records and is updated weekly with about 8000 new records (Basic Patents) and about 8000 Equivalents;

• *European Patent Register*

this service gives on-line access to bibliographic, procedural and legal data for all applications published by EPO and Euro-PCT filings (over 700 000); the base is updated daily;

• *PATOLIS*

it is a unique source of Japanese industrial property rights; it contains complete bibliographic and legal status data (patents since 1955, utility models since 1960, designs since 1965, trademarks since 1902.);
since 1985 on-line access is possible to the PATOLIS database through EPIDOS with a translation of inquiries and search results into English-language;
PATOLIS system together with the communication program EPIDOS-INPADOC KANJI TERMINAL EMULATOR enables access to the data without knowledge of the Japanese language and getting search results in English-language;

• *INFPAT and INFPOL*

these bases of Polish Patent Office are installed in the Warsaw University Computer Centre;
INFPOL base contains bibliographic data on Polish patents, utility models and published applications (information is prepared by Polish Patent Office);
INFPAT base contains bibliographic data on patent publications from 15 countries and regional organizations (based on the information from EPIDOS).

Access to all these bases is payable and the fee depends usually on duration of the access or the number of inquiries.

Many firms begin to offer on-line access to drawings, first pages and full descriptions (especially published by EPO and USPTO). There are for example: MicroPatent, Dialog, Derwent with Microsoft, Bertelsmann with STN, IBM with Optipat.

5. Patent information on the Internet

On-line patent information available free is most often the "information about information". There are first of all WWW home pages of national patent offices, industrial property protection organizations and commercial firms, for example:

- United States Patent and Trademark Office (USPTO): *http://www.uspto.gov/*
- European Patent Office (EPO): *http://www.epo.co.at/epo/*
- Polish Patent Office (UPRP): *http://saturn.ci.uw.edu.pl/up/*

- Knight-Ridder Information (Dialog): *http://www.dialog.com/*
- The Scientific & Technical Information Network (STN): *http://www.fiz-karlsruhe.de/*
- Qeustel-Orbit: *http://www.bedrock.com:80/patents/*
- Derwent: *http://www.derwent.co.uk/*
- MicroPatent: *http://www.micropat.com/*

The patent services, that started to appear lately enable more extensive, partly free access to the patent information, for example:

- STO's Internet Patent Search System
  http://sunsite.unc.edu/patents/intropat.html
  except commercial database it offers:
  - US patent abstracts from nr 4242757 to nr 4890334 (1981-1989),
  - list of patents (number and title) published in the last issue USPTO Official Gazette;
  - searching for US patent title list under US Patent Classification;
- Shadow Patent Office
  http://www.spo.eds.com/patent.html
  except commercial services it enables among other things:
  - a free search on the last 52 weeks of the US patent publications (number and title) under US patent classification;
  - a free search for patents similar to the invention described by 1-1000 words, for patents published since 1.01.1993. up to now;
- US Patents Project at CNIDR
  http://patents.uspto.gov/

  this patent database allows to search in the bibliographic data of the US patents from 1976 according to words (simple or with logical operators) and US classification.