SDI SERVICE ON PATENTS – A CASE STUDY OF USING ONLINE SYSTEMS

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Briefly explains the value of patents in industrial environment. Highlights the advantages of using Online System i.e., DIALOG for offering efficient SDI Service on patents. Describes systematically the procedures involved in initiating such a service. Gives cost particulars and concludes that the success of SDI service depends on proper user-system interaction.

INTRODUCTION

Patents are the vital source of information in industrial world. They are the first document in which a technological innovation is reported in detail, and hence indispensable sources of information for engineers and research workers. The use of patent information helps to avoid costly and unnecessary duplication of development efforts. Therefore, SDI service for patent information is offered to the readers/researchers in Kirloskar Electric Co. Ltd. (KEC) on regular basis from January 1984.

SDI SERVICE ON PATENTS

‘World Patent Index’ (WPI) database of Derwent publications, UK, is an ideal source of information for providing SDI Service on patent information. Initially ‘WPI Gazette’, a weekly publication of Derwent, UK, was consulted as a source of information. After the introduction of ‘World Patent Index’ database in the DIALOG Information System, California, USA, in January 1985, a new era of prompt and highly sophisticated SDI service to the readers has started.

Online system for SDI service has following features:

— Construction of profile and its modification on the basis of the results obtained at various stages of search.
— Facility of multipoint access to data through inventor, patent assignee, title, abstract, international classification number, etc.
— Possibility of complex searches involving large number of terms.
— Facility for revising the profiles.
— Use of simple command language.
— User friendliness.
— Saving in user’s time.

KEC started building the SDI profile with DIALOG in July 1985 with ‘World Patent Index’ as the source database. Initially the profile covered only 7 research topics which were later extended to 9.

PROCEDURE

The operation of SDI service involves following steps:

— Profile construction.
— Entering of SDI profile in DIALOG.
— Circulation of SDI notifications and analysis of feedback.
— Revision of search profile whenever necessary.
The construction of profile is an important step. Ideally there should be one profile for each research topic. But for the reasons of economy a group profile was designed for the readers having common interest. For profile construction, following steps are followed.

**Search Request:** A standard proforma (Appendix-A) was designed to receive search requests from readers. Some of the readers desired to get retrospective information also on the topics noted for SDI service. A common form is used for both the purposes. Forms are filled by the readers with the help of the library staff.

**Search Aids:** Most of the online systems and individual databases provide search aids to help users in systematic construction of profiles and carry out search operations. Some of the important search aids required for patent SDI service are listed below:

- **Guide to DIALOG Searching (GDS):** A loose-leaf binder containing database chapters and a few examples of conducted searches.
- **Chronolog:** A monthly newsletter of DIALOG which notifies additions/deletions, cost variations and search facilities in various databases.
- **International Patent Classification (IPC), 4th edition, 1985.**
- **Derwent Patents Manual - General (1985):** Instruction manual 1A
- **Company Code Manual (1985) (Derwent) in two parts comprising 13,700 standard companies and their codes.**

It is essential to keep up-to-date search aids by incorporating the revisions, additions and deletions etc. regularly.

**Search Topic Analysis:** The topics suggested by readers for SDI service are analysed into concepts. All possible synonyms and spelling variations are checked and listed.

**Example:** Sinusoidal pulse width modulated variable frequency inverter fed induction motor drives.

**Concept A**

INVERTER

**Concept B**

PULSE WIDTH MODULATION
PULSE WIDTH MODULATE
PULSE WIDTH MODULATED
PULSE WIDTH MODULATING
PWM

**Concept C**

SINUSOIDAL
VARIABLE FREQUENCY
VARYING FREQUENCY

**Concept D**

A C MOTOR/S
INDUCTION MOTOR/S
MOTOR DRIVE/S
ASYNCHRONOUS MOTOR/S

Relevant dictionaries, thesauri and at least one or two sample patents on each SDI topic in question are studied to derive all possible concepts or key terms. A similar analysis is carried out with respect to rest of the SDI topics.

**Search Strategy Formulation:** In this step the concepts or key terms are combined using logical operators 'AND', 'OR', 'NOT' into a search statement [2] Some of the words are truncated to reduce the length of the search statement and increase the recall. A search strategy for the example stated above, is demonstrated as follows:

INVERT?R? AND (PULSE(W)WIDTH(W)MODULAT? OR PWM) AND (SINUSOIDAL OR VAR?(W)FREQUENCY AND (MOTOR? OR DRIVE?)

A decision has to be taken to present the concepts in standard terms accurately. As the search process is heuristic in nature it is usual practice to prepare a 'first try' search statement and improve the output in subsequent steps. Provision of few additional steps is also kept to broaden or narrow down the search output.
TERMINAL OPERATIONS

The searcher has to get ready with the homework of quick interaction with the terminal. The telex is used as the communication media for conducting online search. At first the telex call is made to Gateway Centre in New York on Low Speed Data Service (LSDS) line through Madras International Telex Exchange [1]. After getting 'GA' (Go Ahead) response from the system, name of one of the American networks such as, TYMNET, TELENET OR DIALNET is entered to access DIALOG. Online systems recognise their users only by the secret passwords assigned to them. Hence, the password has to be entered correctly before opening any file for searching. Once online with DIALOG, the required file is opened and searched. In the present case the 'World Patent Index' CURRENT FILE No. 351 (1981 to present) is opened and searched. Since there is a common concept 'Inverter' in all the SDI topics, the records containing the same are first sorted out. The operations held at this stage are reproduced as follows:

? S INVERT?R?
   SI 12263 INVERT?R?
? S SI NOT (IC=H03? OR IC=H04)
   S2 9272 SI NOT (IC=H03?
      OR IC=H04?)
? S S2 AND IC=H02M?
   S3 3271 S2 AND IC = H02M?

In step 2, records relating to following subjects are eliminated using the logical operator 'NOT' in conjunction with the Step 1.

Subjects Corresponding
-Electronic circuitry, IPC Numbers
Telecommunication ICS H03
Engineering H04

As the output in step 3 is too small for getting weekly SDI notifications, step 2 is considered the base for further combinations.

The search operations held for first topic are given below.

?S PULSE(W) WIDTH(W) MODULAT?
   OR PWM
   S4 2152 PULSE(W) WIDTH(W) MODULAT? OR PWM
?S S4 AND (MOTOR? OR DRIVE?)
   S5 716 S4 AND (MOTOR? OR DRIVE?)
?S S5 AND (SINUSOIDAL OR VAR?-(W)FREQUENC?)
   S6 18 S5 AND (SINUSOIDAL OR VAR?- (W)FREQUENC?)
?S S5/DE
   S7 118 S5/DE
?C 2 AND 7
   S8 34 2 AND 7

For convenience it is usual practice to start the search with full text terms and limit the output by classification numbers, descriptors, etc. at a later stage. The descriptor combination is made in step 5 but it is learnt that the output is too small. Similarly step 6 too has led to very low output. Hence, steps 6, 7 and 8 are ignored and search process continued.

?C 2 AND 5
   S9 210 2 AND 5

The remaining 6 topics were searched on similar lines and finally a set number 50 is arrived at. The same is used for storing the search strategy with DIALOG for SDI service.

Example:

?PR 50/5/1-50
   PRO15; PRINT 50/5 (ITEMS 1-50) EST. COST OF DLRS.25.00
?SAVE SDI
   SDI "PB001" STORED
   LOGOFF

The flow chart indicating various steps involved in a search is given in Appendix-B. The use of commands such as "EXPAND" are avoided as they take too much of telex time and come out to be very expensive.
The printed version of thesaurus is used instead of the online one for economical reasons.

REVISION OF PROFILE
Weekly notifications of the SDI profile were circulated to the end users with a request to cross mark(x) the patent titles which are irrelevant to any of the SDI topics. The feed-backs from users were analysed during the first four weeks of the profile construction. The profile was revised accordingly during the 5th week. Some of the sections of the profile are revised to reduce the retrieval noise. The combination of ‘NOT’ operator was used to eliminate the topics which were the root cause of the retrieval noise.

RECALL AND PRECISION
The use of non-standard terms initially led to retrieval of highly specific documents. But this caused poor recall and low precision. Hence, a suitable combination of IPC numbers, descriptors and non-standard terms was worked out at the time of revision of profile which subsequently raised the SDI outputs from 60% to 80%. The recall and precision are inversely proportional to each other [3] and, therefore, it is difficult to reach an ideal stage. The users of SDI profile are entitled to receive a minimum of 25 references per week. Hence, the recall was adjusted to be around 25 ref/week for the reasons of economy.

COST
The cost of SDI service depends on the following factors.
— Telex time
— Computer time
— Number of records printed

The cost of telex time and computer time are involved only at the time of profile construction and its revision. A minimum of US$ 6.25 are charged for first 25 references and US$0.5 for each subsequent reference. The customers are billed by DIALOG once a month. A detailed cost analysis is presented in Appendix C.

CONCLUSION
It was found that SDI service based on online databases is far superior to the one offered by manual methods.

The quality of output depends on proper understanding of users’ requirements and translation of the same into suitable profiles. It was also found to be more economical to have a group profile for several readers having research interests common to each other.

ACKNOWLEDGEMENT
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REFERENCES
SDI SERVICE ON PATENTS USING ONLINE SYSTEMS

APPENDIX - A

KIRLOSKAR ELECTRIC COMPANY LIMITED
BANGALORE - 560 055

From: 
Ref: 

To Library (RAD/S) 
Date: 

Sub: BIBLIOGRAPHICAL SERVICES

1. Title of the Topic 
2. Suggested Keywords/Classification Nos. : 
3. Types of Documents required: 
   Books [ ] Reports [ ] 
   Monographs [ ] Translation [ ] 
   Articles [ ] Thesis [ ] 
   Conference Papers [ ] Product Catalogues [ ] 
   Patents [ ] Standards [ ] 
   Other, if any [ ]

4. Whether abstracts are required? Yes [ ] No [ ]
5. Search Period: 
6. Search by any specific Author: India [ ] France [ ]
7. Country Coverage: UK [ ] Japan [ ]
   USA [ ] USSR [ ]
   W. Germany [ ] Other, if any [ ]
8. Any limitation on number of references? INSPEC [ ] DERWENT [ ]
9. Suggested Databases: COMPENDEX [ ] WIPO [ ]
   NTIS [ ] Other, if any [ ]
10. Do you already have any reference on the said topic? KEC Project title and expected benefits:
11. Date, by which the information is required? 
12. 

Signature of the Indentor: __________________________
Head of the Department __________________________

Name __________________________

FOR USE IN THE LIBRARY

1. Work to be assigned to: 
2. Date of completion of work: 

LIBRARIAN

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# Cost Detail of SDI Service for One Year

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<th>Particulars</th>
<th>Computer Time Used</th>
<th>Cost/ Min</th>
<th>Computer Time Cost</th>
<th>Telex Time</th>
<th>Telex Cost/ Min</th>
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<th>Print Cost</th>
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<td>Profile Construction (25-7-85)</td>
<td>72.57 min</td>
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<td>(Rs.1297.35)</td>
<td>77.57</td>
<td>Rs.28/-</td>
<td>Rs.2171.96</td>
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<td>3969.31</td>
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<td>(Rs.1114.56)</td>
<td>47 min.</td>
<td>Rs.28/-</td>
<td>Rs.1316.00</td>
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SDI cost per one Topic = 10630/7 = Rs. 1518/- for one year