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Information Storage and Retrieval : A Case Study

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Abstract :

*This paper is a case study dealing with the Information Processing, its Storage and Retrieval techniques at **Indian Rubber Manufacturers Research Association (IRMRA) Library**, which narrates all aforesaid processes and also providing services to its users. The intent of this paper is to demonstrate various manual special services of library and its information retrieval from research scientists using Internet and Intranet. A systematic approach toward the optimum utilization of these resources is made. It also briefly explains about the Components of IRMRA Library, Design and Development of Library Homepage, Information retrieval over Intranet, Linkage to all departments through Library Database, Provision for linking of Rubber & allied sites : National and International. It also briefly gives the usage of information resources by the users. It also gives an idea of providing specialized services like e-SDI, e-CAS etc. manually. Some useful links for Rubber and Plastics are dealt at the last part of the article. Methods to plan, develop, test and finally offer these services in manually are given. The benefits gained by integrating these special services with complimentary services offered by libraries. Substantial benefits to Scientists, organizational administrators and the library are possible as a result of these special services. A successful working model of manually providing these special services are currently in use at IRMRA Library is discussed.*

1. INTRODUCTION

Library and Information Centers are the systems providing users the organized information access to repository of information and services at knowledge base. We are living in an age of “Information Explosion” and it is expected from the library managers that the required information must be gushed out without delay and in accuracy. With the growing importance and use of Internet for information search and services, more and more services are being provided by many journal websites. More or less some of these services are free, which is beneficial to certain libraries and information centers.

The major objectives and principles of information storage and retrieval have been narrated with applied library system at IRMRA library. The functional components of the research and special library have been presented as a model for the information services of the library. Also how the specialized services have been providing manually through Intranet is also discussed here. In libraries, Intranet can facilitate so many services. It helps in dissemination of stored information as well as allows to access to remote information. Through intranet, libraries can discharge the required information to its users in less time, with high effectiveness.

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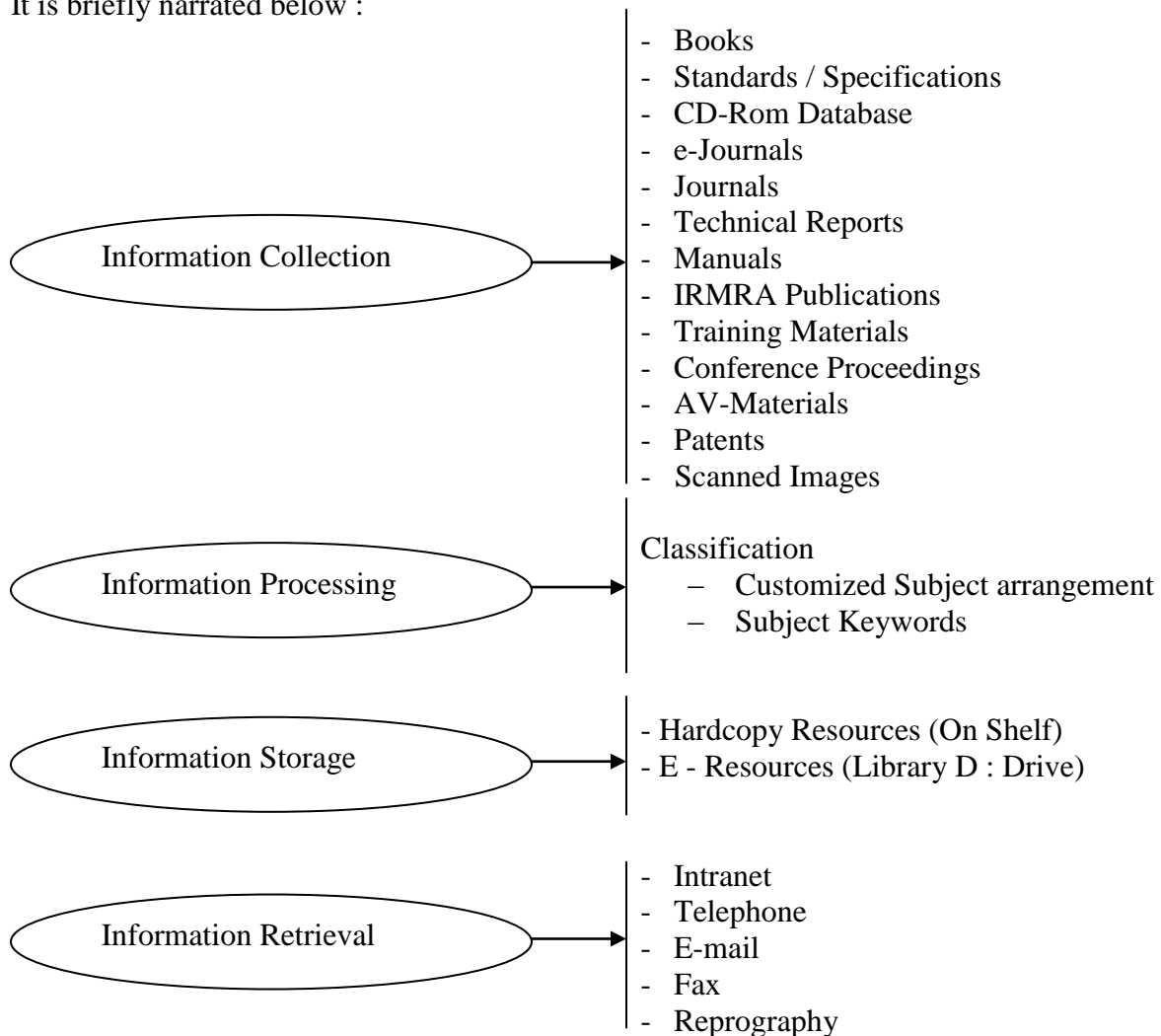
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2. ISR AT IRMRA LIBRARY

In the components of IRMRA Library consists of four parts viz.

- Information Collection
- Information Processing
- Information Storage
- Information Retrieval

It is briefly narrated below :



3. ACTIVITIES AT IRMRA LIBRARY

- 3.1 Design and Development of Library Homepage
- 3.2 Information retrieval over Intranet
- 3.3 Linkage to all departments through Library Database
- 3.4 Provision for linking of Rubber & allied sites : National and International
- 3.5 Searching of Patent Information

3.1 Design and Development of Library Homepage

The proposed plan for the Design and Development of Library Homepage has planned in such a way that it should give link to the :

- Library Database
- Library Software
- Links to other sites
- Search Engines



Fig 1 : Screen Layout of IRMRA Library Homepage

3.2 Information Retrieval :

IRMRA library pioneers in providing information services at the user's desktops through Intranet / Internet by e-mail / Intramail. Equipped with high performance systems, a pond of information resources, the library gives better services to its patrons. Some of them are briefed below :

3.2.1. e-CAS :

"CAS" stands for "Current Awareness Service", a method of keeping users abreast with the latest information. e-CAS means implementing the CAS electronically using the e-mail / Intramail facility. E-CAS can consider both CAS and SDI together.

This is possible by creating e-profile of the users. E-profile may consist of user details such as User name, e-mail / Intramail ID, Subjects of Interests. etc. The created profiles can be stored in a database system. E-CAS system tracks everyone's profile for those matching entries in a library database such as new arrivals of books on a specified subject, new arrival of journal, newly added AV-Materials, CD's, etc. the information is composed into mail messages and sent to respective users periodically. e-CAS consists of the following services :

1. New Arrival's Alert
2. Contents Alert
3. Conference Alert
4. Articles Alert
5. Circulation of new issues of journals to Section Heads
6. Photocopy of Selected Articles
7. Notification of e-articles downloaded

3.2.2. e-SDI :

"SDI" stands for "Selective Dissemination of Information", an information retrieval technique that enables users to receive relevant information automatically, on a regular basis, through profiles that reflect their information needs. SDI services were originally developed in the 1950s, when the most prevalent information systems technology used batch searching. Such searching gave way to online, interactive searching from the late 1960s on but has made a comeback with the Web, sometimes labeled "push technology." Selective dissemination of information allows you to stay current with new literature as it is published. The current awareness service is different in different databases and different search systems.

The most complicated aspect of beginning this service is creating the individual scientist interest profiles. As each profile is personalized to an individual scientist, time must be allotted to schedule initial meetings and review sessions with scientists. Profiles of this service are based on searching for specific authors and subject keywords. The subject keywords are not from a controlled vocabulary, but are true keywords. A short meeting is scheduled with a librarian to formalize the profile and discuss methods for refining the profile in the future. The profile is then entered and saved by the librarian. This system operates by running a profile for each participating scientists against updates of the database. The profile is created to extract citations to articles that match a scientist's interests. Extracted citations are forwarded to the researcher each week as a alert via e-mail / Intramail or telephone.

Publicizing the service is important. Sending out the initial forms is prefaced by announcements at meetings. After forms are sent and scientists who desire to participate respond, a second round

of publicity is done via e-mail. The electronic publicity method seems to reach people more directly; it is certainly cheaper than using paper.

The keywords are matched against latest available documents and the required users are notified thro Telephone, Intrachat, Alerts, Intramail attachments, etc. The procedure of SDI carried-out manually is as follows :

1. User's Needs Collection
2. User Profile formation (Keywords)
3. Information Searching and Downloading
4. Document Profile Formation (Keywords)
5. Matching of Profiles
6. Notification to Users
7. Feedback

The key to building a successful service lies in careful planning. It is hoped that this paper will assist interested special librarians to build stronger libraries through service orientation and user environment.

3.2.3. Bibliographic and Full-Text access :

The list of documents available in the library can be accessed from the user through Intranet. Some full-text e-books on rubber and other allied subjects can also be accessed from the library database.

3.2.4. Communication / File transfer :

The users can easily communicate and interact with the librarian. They can request information through intrachat or intrmail and the same can be transferred from library to their desktop. Files of full-text or short information can also be easily transferred from library to another user on the network through Intranet.

3.2.5. Information Retrieval by the users :

A survey of Information Retrieval by the users from different resources of the library was conducted to assess its success in fulfilling user needs and to plan for future enhancements of the services. From the feedback received, it is apparent that many participants feel that these services make them more aware of current literature in their fields. They are almost unanimously pleased that these services are offered. Overall, the evaluation shows that the service is successful as it now exists manually but once the library get automated, the same service will be more effective. This provides information for future planning and enhancements.

TABLE - 1

Sr.No.	Section	User Profile	Document profile	% use of Sources
1.	Senior	<u>Director</u>	Books	15 %

Scientists	<ul style="list-style-type: none"> • Recent Developments in Rubber Field • Training Courses • Patents 	Journals	30 %		
		e-articles	10 %		
		Standards	03 %		
		CD-ROM	03 %		
		Newspapers	02 %		
		Periodicals	02 %		
		Websites	04 %		
		<u>Deputy Director</u>	Books	20 %	
		<ul style="list-style-type: none"> • Recent Developments in Rubber Field • Rubber Testing • Standards • Training Courses • Patents 	Journals	30 %	
			e-articles	10 %	
Standards	10 %				
CD-ROM	03 %				
Newspapers	03 %				
Periodicals	02 %				
Websites	08 %				
2.	Physical Science	Physical Testing of Rubber	Books	15 %	
<ul style="list-style-type: none"> • Rubber Testing • Rubber Latex • ICI Polyurethanes • Latex Allergy • Latex links • Training Courses • Patents 	Journals	30 %			
	e-articles	15 %			
	Standards	10 %			
	CD-ROM	05 %			
	Newspapers	02 %			
	Periodicals	02 %			
	Websites	08 %			
	3.	Chemical Science	Chemical Testing of Rubber	Books	15 %
<ul style="list-style-type: none"> • Rubber Testing • Inductively Coupled Plasma (ICP) • Instrumentation • oil testing • Weather-o-meter • Patents • 	Journals	20 %			
	e-articles	10 %			
	Standards	05 %			
	CD-ROM	03 %			
	Newspapers	02 %			
	Periodicals	02 %			
	Websites	10 %			
	4.	Instrumentation Science Lab - I	Rubber Testing	Books	15 %
	<ul style="list-style-type: none"> • Thermal Analysis and Calorimetry • Patents • Rubber Formulations • Rubberization of Wheels • Thermal Analysis of Polymeric Materials 	Journals	20 %		
		e-articles	20 %		
Standards		05 %			
CD-ROM		05 %			
Newspapers		02 %			
Periodicals		02 %			
Websites		15 %			
5.	Instrumentation	Rubber Testing	Books	15 %	

Science Lab - II	<ul style="list-style-type: none"> • Patents • Extrusion • Injection Molding • Metal Casting • Radiation Curing <ul style="list-style-type: none"> ○ Electron Beam ○ Gamma • Shock & Vibration Control • Thermoplastic Elastomers • 	<ul style="list-style-type: none"> Journals e-articles Standards CD-ROM Newspapers Periodicals Websites 	<ul style="list-style-type: none"> 25 % 10 % 05 % 03 % 02 % 02 % 10 %
6. Instrumentation Science Lab - III	<ul style="list-style-type: none"> • Rubber Testing • Patents • Brookfield Viscometer • EPDM • Gas Chromatograph-Liquid Chromatograph - Mass Spectrometer (GCMS) • Applied Polymer • Low Temp Resistance • Synthetic Rubber • Polymers <ul style="list-style-type: none"> ○ Plastics ○ E-Polymers ○ Applied Polymer ○ Thermal Degradation of Polymer ○ Polymer Sealant Liquid ○ Solvent Saver Polyethylene ○ Polyurethane 	<ul style="list-style-type: none"> Books Journals e-articles Standards CD-ROM Newspapers Periodicals Websites 	<ul style="list-style-type: none"> 15 % 30 % 20 % 05 % 05 % 02 % 02 % 08 %
6. Processing	<ul style="list-style-type: none"> Rubber Testing Manufacturing Rubber Seals Polymer Sealant 	<ul style="list-style-type: none"> Books Journals e-articles Standards CD-ROM Newspapers Periodicals Websites 	<ul style="list-style-type: none"> 15 % 20 % 10 % 05 % 05 % 02 % 02 % 08 %
		Average	77%

It is found that the information retrieval from all the scientists by various resources are different for from one section to another. The overall average percentage of Information retrieval shows 77% which show the maximum utility of the resources.

3.3 Links to all departments through Intranet

The library database and its digital resources can be accessed from all the departmental users which are linked through Intranet and can be easily access from their desktop.
(Ref : Appendix – I).

3.4 Provision for linking of Rubber & allied sites : National and International

Some useful links for Rubber and Plastics are provided through the library homepage which will help users to surf other related websites on the subject for their information searching and communication. (Ref : Appendix – II)

3.4 Searching of Patent Information

Searching of Patent information through various website links and the same will be provided to scientists for their Research and Developmental activities. The users can also access the same through links provided through library homepage. (Ref : Appendix – III)

4. CONCLUSION :

Information Professionals are becoming Webmaster and Intranet Coordinators, combining technical expertise with information management ability. With the increasing emphasis on resource sharing not only between libraries but between different branches and departments of a library, the Intranet offers the potential to be very important tool in libraries' effort to make the most efficient use of their resources. For information services staff the intranet offers a wonderful range of technologies on which they can develop their skills as Information Managers. Information Professionals are becoming webmaster and intranet coordinators, combining technical expertise with information management ability. As the librarian emerges into a more proactive role, the intranet offers a highly effective way of pushing information at the user. An intranet is best described as our own internal version of the internet, using the same protocols and browsers as used by the internet. Intranets are going to become increasingly popular in the future as organizations realize how effective they can be.

The effect of a current awareness service is overwhelmingly positive. The cost of providing this service is much less than running SDI searches on commercially available databases. Once a CAS is begun, scientists will start to want and expect more from the services that are already in place. Increased demand may place stress on existing services. There will more demands placed on librarians who do liaison work, as they will be responsible for creating and refining the profiles. Personal experience has shown that even binding schedules may need adjustment. But if successful libraries have anything in common with successful corporations, then increasing business is probably not such a bad thing to do.

Most libraries today probably have some form of computer network. An intranet can be viewed as simply a logical extension of the trend in libraries towards greater connectivity. Part of its charm is that it relies mainly on existing technology and infrastructure. For a library or organization that already have internet access, an intranet is a clever application that more fully exploits features of the Internet. With its relatively low cost and ease of set up, the many advantages of an intranet to a library makes it difficult for it to be ignored.

5. REFERENCES :

A : Hardcopy

1. G.Bhojaraju (2003) *Intranet for Library Services* ; Proceedings of the 21st Annual Convention on New challenges in Information Management and E-learning in the age of Globalization : Issues and Opportunities, April 9- 11, 2003, Roorkee. Pp. 354-366.
2. Soundararajan.E. and Others (2003) “*Networked Information Services : A case study of IGCAR Library*” ; Proceedings of the 5th National MANLIBNET Convention on Emerging Digital Library initiative and future of Business and Management Information in India, March 6-8, 2003, Jamshedpur. Pp. 198-207.
3. Yadav.R.T : “*Network and Information Services*” (2003) Proceedings of the 5th National MANLIBNET Convention on Emerging Digital Library initiative and future of Business and Management Information in India, March 6-8, 2003, Jamshedpur. Pp. 279-289.
4. Allen, Robert S : Current Awareness Service for Special Libraries using Microcomputer Based Current Contents on Diskette; Special Libraries; Winter 1994, Vol. 85 (1), Wasington DC, Pp. 35-43.

B : Websites

5. <http://www.rubber.org/rubberlinks.htm>
6. <http://www.rapra.net>
7. <http://www.rubberroom.com>
8. <http://www.vic-ikp.info/patentinfo.htm>
9. <http://helix.helsinki.fi/infokeskus/novaweb/sdi.htm>
10. <http://www.cuadra.com/products/sdi.html>

Appendix – I : List of digital resources available at the library

The following digital resources are available at IRMRA Library :

E-Journals	: Rubber Chemistry and Technology	www.rubber.org
E-books	: on rubber	
CD-ROM Database	: Indian Standards on CD-ROM	
Other	: AV- Materials on Rubber	

Appendix – II : Some useful links for Rubber and Plastics

The following are some of the useful links for Rubber and Plastics industries which can be accessed from the library links :

Indian Sites :

http://www.rubberboard.org.in/	Rubber Board, Kottayam, India.
http://www.irmra.org	Indian Rubber Manufacturers Research Association. Thane, India.
http://www.rubbercommerce.com/	Rubber Commerce (India) Pvt. Ltd
http://www.rubbertnetworking.com/	Rubber Networking
http://www.indiarubberexpo.com	All India Rubber Industries Association

International Sites :

www.rubber.org/rubberlinks.htm	Rubber Division, American Chemical Society.
www.rapra.net	Rapra Technology
www.polymer-search.com	Rapra Polymer Search.
http://www.rma.org	Rubber Manufacturers Association, Washington
www.dupont-dow.com/Tech_info/chemical.asp	DuPont Dow Elastomers
http://www.rubbertnetworkchina.com	Rubber Network, China.
http://crumb.rubber.com	Crumb Rubber Universal Marketing Bureau
www.e-polymers.org	European Polymer Federation
www.toxnet.nlm.nih.gov	U.S. National Library of Medicine,
www.chemweb.com	Elsevier Ltd CHEMWEB
www.ilpi.com/msds/index.html	Material Safety Data Sheets
www.rubber.org/membership.htm	Membership of Rubber Division
http://www.basa.uk.com/index.cfm	British Adhesives and Sealants Association (BASA)
http://www.bpf.co.uk/	British Plastics Federation (BPF)

<http://www.bpta.co.uk/>

<http://www.brma.co.uk>

<http://www.rubberstudy.com/>

<http://www.merl-ltd.co.uk>

<http://www.pifa.co.uk/>

<http://www.pbif.co.uk>

<http://www.pras.com>

<http://www.parmma.com>

<http://www.pmda.org.uk>

<http://www.pmmda.org.uk/>

<http://www.picme.org>

<http://www.ppma.co.uk>

<http://babbage.me.ic.ac.uk/materials/SAA/SAA1.html>

<http://www.spra.org.uk>

www.polymer-search.com

www.plasticssearch.com

www.prw.com

www.polymer-age.co.uk

www.plasticsnet.com

www.matweb.com

www.pras.com

www.campusplastics.com

www.apgate.com

<http://www.airt.dircon.co.uk/>

<http://www.micro90.com/bpf/bpf/index-1.htm>

British Polymer Training Association (BPTA)
British Rubber Manufacturers Association Ltd.
(BRMA)

International Rubber Study Group (IRSG)
Materials Engineering Research Laboratory Ltd.
(MERL)

The Packaging and Industrial Films Association
(PIFA)

Plastics and Board Industries Federation (PBIF)

Plastics and Rubber Advisory Service (PRAS)

Plastics and Rubber Machinery Manufacturing
Association (PRMMA)

Plastics Machinery Distributors Association

Polymer Machinery Manufacturers Distributors
Association Ltd. (PMMDA)

Process Industries Centre for Manufacturing
Excellence (PICME)

Processing and Packaging Machinery
Association (PPMA)

Society for Adhesion and Adhesives

Scottish Plastic and Rubber Association SPRA

Powerful search engine for polymers (RAPRA)

Plastics & Rubber Weekly

Plastics & Rubber Weekly online

British Plastics & Rubber online

Data on commercial plastics (USA)

Data on 16000 materials

Plastics and Rubber Advisory Service at BPF

Property, processing and source data on grades
of commercial plastics (European)

Company directory (Applegate)

Association of the International Rubber Trade

British Plastics Federation

http://www.bpta.co.uk/	British Polymer Training Association (BPTA)
http://www.cia.org.uk/	Chemical Industries Association
http://www.cbi.org.uk/	Confederation of British Industry (CBI)
http://www.environment-agency.gov.uk/	Environment Agency
http://www.europur.com/	European Association of Flexible Polyurethane Foam Blocks Manufacturers (EUROPUR)
http://www.hse.gov.uk/	Health and Safety Executive
http://www.itma-europe.com/page1.html	Imported Tyre Manufacturers Association (fellow members of BTIF and TIC)
http://www.instmat.co.uk/	Institute of Materials (Member of Rubber Division Board)
http://www.blic.be/	International Bureau de Liaison des Industries du Caoutchouc de l'Union Europeenne (BLIC)
http://www.itra.com/	International Tire & Rubber Association
http://www.smmmt.co.uk/news/pressreleasedisplay.asp?articleid=172	National British Tyre Industry Federation
http://www.ntda.co.uk/	National Tyre Distributors Association
http://www.tyresafety.co.uk/	Tyre Industry Council (TIC)
http://www.tyres-online.co.uk/default.asp	<u>Retread Manufacturers Association (Fellow members of BTIF and TIC)</u>
http://www.iisrp.com/	International Institute of Synthetic Rubber producers Inc.

Appendix – III : Patent Links

FREE DATABASE

- | | |
|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1. http://pk2id.delhi.nic.in | National Informatics Centre, New Delhi.
For INPADOC-EPIDOC database. |
| 2. http://ep.espacenet.com | The European Patent Office |
| 3. http://www.uspto.gov | United States Patent & Trademark Office (Since 1976) |
| 4. http://www.ipic.moc.go.th/search5.html | Dept. of Intellectual Property, Thailand. |
| 5. http://pctgazette.wipo.net | World Intellectual Property Organisation. Patents files through PCT since 1998 can be searched. |
| 6. http://www.library.ubc.ca/patscan/ | Canadian Patent Office (CIPO) since 1920.
Database is available in English and French. |
| 7. http://www.jpo-miti.jp | Japanese Patent Office |
| 8. http://www.piperpat.co.nz | Pipers Virtual Intellectual Property Library, New Zealand. |
| 9. http://www.wto.org | World Trade Organization |
| 10. http://www.patent.gov.uk | UK Patent Office |

COMMERCIAL DATABASE

1. <http://www.derwent.com> Derwent Scientific & Patent Searching Services
2. <http://www.cas.org> Chemical Abstracts Services
<http://casweb.cas.org> STN
3. <http://www.patents.ibm.com> IBM Patent Server
<http://patent.womplex.ibm.com>
4. <http://www.dialog.com> The Dialog Corporation
5. <http://www.micropat.com> MicroPatent
6. <http://www.1790.com> Corporate Intelligence Corporation
7. <http://www.questel.orbit.com> Questel Orbit
8. <http://www.genomic.org> DNA patents issued by USPTO
9. <http://www.iprlawindia.org/iprlaw/> The centre for Intellectual property Rights, Reserve and Advocacy (CIPRA)
10. <http://www.patentmatics.com/> Science, Technology and Management of Intellectual Property Rights in general and of Patents and Patenting Practices in particular among all those in India.

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