

So You Want to Buy Micrographics Equipment!

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Based on the practical experience of the author at ISRO Satellite Centre Library, the paper highlights the predominant features and specifications for microform readers and reader-printers, pitfalls in acquiring micrographics equipment. Provides a checklist for choosing appropriate user aid. Enumerates procedure to buy suitable equipment for small and medium size libraries. Finally suggests unified professional efforts in setting up of micrographics facilities to make microforms more popular among user community.

0 INTRODUCTION

Microforms have become almost inevitable for libraries. Most of the special libraries in India have either faced or are likely to face shortly the situation wherein part of their collection will be in microform. Whatever the justification a librarian put forths, the fact that microforms have been thrust in the format, in the way and in the areas convenient to producers of information products of information rich countries greatly aided by Indian agents remains undisputed. Independent of whether users have welcomed microforms or not, they have entered most of the libraries mainly due to aggressive selling techniques of the trade. Of course, the advantages of microforms such as saving in space and economy have come handy for inevitable justification. In fact, more and more microforms are landing in libraries without much of planning for facilities to check them for quality, to store them safely and to promote their use.

The confrontation and frustration for a librarian, begins right from the time of their arrival in library as users either ignore them or resist using them in the same form demanding paper copies. Unlike motion picture and TV where media attraction alone could sustain the interest of users in their initial years, microforms have least of medium attraction for users. Users are psychologically averse to microforms.

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One of the reasons for user resistance, as mentioned repeatedly by experts, is lack of appropriate user aid equipment to read microforms and to take paper copies as and when needed. There is a total lack of indigenous technology and expertise to manufacture, instal, maintain and service quality user equipment facility, be it an acid free and fire resisting storing unit, a micrographics writing/marking pen, a handheld viewer, a cleaning aid, a reader, a microform projector, a reader-printer, an enlarger-printer or an automated microform storing-cum-retrieval system. To cite a trivial problem is the need for micrographics pens to write accession number and/or possession mark of the library on microfiche. Due to lack of a suitable indigenous aid, libraries have either to scratch fiche or stick pre-gummed labels damaging microfiche, or leave without accession number and/or possession mark.

Every librarian has to make independent efforts to discover the mystery of microform promotion and use as there is least of consolidation of experiences within the country. Non-availability of right information and right agency for a small library to make a quick and cost-efficient decision in setting up of micrographics facilities is obvious. As a result, no quality check is made on microforms acquired and they are stored like index cards in many libraries. In some places the microform collection is not even homogeneous as microforms of different format, polarity, reduction ratio are acquired. As regards buying user aids are concerned, whatever promoted by Indian agents are bought without much weightage for a critical evaluation.

Keeping such circumstances in view, this paper tries to present an introspection by narrating the experience of the author in developing a micrographics facility at ISRO Satellite Centre Library.

Though the facility at ISRO Satellite Centre Library has fairly a good range of micrographics equipment from simple quality checking aids and cleaning station to sophisticated automatic microfiche camera-cum-processor and diazo duplicator, the present discussion and illustrations are restricted to popular user aids such as microform readers and reader-printers. Secondly, the experience at a single library cannot highlight all types of problems and hence it is firmly believed that the paper is incomplete in this sense. It is quite desirable that a couple of librarians highlight their problems to get a complete picture. Thirdly, the procurement procedures and importing formalities are so extensive and complicated that all aspects cannot be covered in a paper like this. However, it is to the advantage of a librarian if he is aware of various procedures at purchase department, licencing and customs authorities.

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1 GENERATION OF SPECIFICATIONS

Having acquired microforms and decided to promote their use with suitable user aid equipment, one has to generate the specifications of the equipment. Information about microform equipment is widely dispersed and a small or medium-sized library without a full-fledged micrographics unit and full time person to look after it, finds it very difficult to collect necessary information to decide on various aspects of microforms and generate necessary specifications for user equipment. In the absence of readymade specifications and evaluated information about available equipment, established libraries within the country, micrographics associations, manufacturers and suppliers of micrographics equipment and journals in the field are some of the sources one can immediately look upon. A selected list of sources are provided in Appendix I. A list of manufacturers and suppliers of micrographics equipment given as Appendix-II would help to acquire product catalogues and other information. Even before one learns something about buying the best, if he has not planned well, agents might take the buyer for a ride. Unfortunately many libraries who had bad experience with a particular agent either keep silent or are even excessively generous to provide a good performance report making their way easy for further rides.

It is at this stage that the librarian should be clear about the nature of his existing as well as future microform collection in terms of formats, size, reduction ratio, polarity, film type, etc. A heterogeneous collection with many formats and types such as fiche, roll film, film cassette, aperture card with different reduction ratios will lead to maximum complexity in identifying multipurpose user aids capable of satisfying all such needs. The microform collection development policy has to be clear, consistent and definite to enable selection of user aid equipment. However, at times it becomes inevitable for a librarian to have more than one format or type of microform. At ISRO Satellite Centre library, we deliberately developed a collection of negative microfiche of NMA type 1 (i.e. 4" x 6", 98 frame, 24x reduction ratio fiche), yet we were forced to add few 48x negative fiche while buying a cumulative index, positive fiche while buying few theses and 16mm roll film while acquiring some back volumes of periodicals.

A check list of desirable features/specifications of microform reader and reader-printer is presented below. These features are not exhaustive nor a definite choice of feature is shown. The nature of microform collection and needs of users should help an individual library to modify features and decide additional features.

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(i) *Film format.* Though multipurpose readers such as those which allow fiche, aperture card and roll film, are available with necessary attachments, it is better to be specific about the main format to be handled by the reader.

(ii) *Screen.* (a) *Size.* For an approximate A₄ size original to be blown up to one and a quarter time, a 11" × 14" screen is necessary. (b) *Type and colour.* Front projection type, nonglare, opaque or tinted light green or grey colour is preferable. Evaluate the advantages and disadvantages of rear projection type reader with front projection type reader and opaque screen with fresnel and diffusion type screens. (c) *Position and angle.* Middle of the screen should not be above the eye level of user and the angle should be about 30° backward for an opaque screen.

(iii) *Lens.* (a) *Magnification ratio.* Depending on the reduction ratio of the microform appropriate magnification ratio of lens should be selected. For multiple magnification ratios a lens turret is preferable compared to floating and dropping type additional lenses. (b) *Resolution.* Resolution of lens should not be less than 4 lines per mm.

(iv) *Lamp.* (a) Tungsten halogen lamp with 50 watt power consumption should suffice an ordinary reader. (b) *Power requirements,* 240/250 V 50/60 HZ AC. Chargeable battery operated models are also available especially for portable readers. (c) *Illumination.* Even illumination with control for high, low and off needed. (d) *Cooling arrangement.* Internal/built-in cooling arrangement by autofan is needed to keep the equipment cool while using continuously.

(v) *Ease of handling.* (a) Easy insertion and safe handling of microform should be possible. (b) *Image scan and index meter.* To access a particular frame (i.e. page) manual as well as motorised scanning facility with indexes are available. Motorised scan would be very useful in case of roll films.

(c) *Image rotation.* Provision to rotate image at least by 90° is needed. This becomes critical when charts and tables have to be read. (d) We should be able to use microform reader with ambient light (i.e. without dark room) and without air conditioned atmosphere. (e) *Group viewing.* In case group viewing facility is desired either an independent projector or a reader with limited projection facility can be considered.

(vi) *Physical features.* (a) *Dimension and weight.* Physical features such as dimension and weight much depend on the purpose of readers. Accordingly, a range of readers such as pocket model handheld viewers,

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portable brief case model readers and table model readers are available. (b) A dust cover and tool kit are normally provided with readers. (c) Spare lenses and lamps and necessary accessories such as roll film attachment mentioned earlier have to be asked for.

(vii) *Other aspects.* (a) *Year of introducing the model.* It is always better to know the year of introducing the model and latest and long standing models are preferred in terms of availability of spares at a later date. (b) *Other users.* Name and addresses of other users of the model in the vicinity within the country have to be obtained from suppliers for witnessing the working of the equipment and seeking performance reports. (c) *Indian agent.* If there is any Indian agent the same has to be ascertained with agents commission, installation, order handling, training, annual service and other charges and ready availability of spares and consumables with Indian agent against Rupee payment. (d) Though looks as a formal purchase procedure, warranty and guarantee have to be asked from supplier. (e) One of the important aspects is to insist for complete specifications with printed catalogue of the equipment before making comparative evaluation. (f) It is also better to insist for arranging a demonstration, if possible.

Further, in case of reader-printer the following additional features/specifications have to be added:

- (i) *Exposure control.* Provision for controlling exposure while printing paper copy is desirable.
- (ii) *Print delivery speed or print cycle time.* Some reader-printers could be quite slow allowing one to take 150-200 copies per day. Many do not allow image to be read while printing and the same contributes to slow print delivery.
- (iii) *Copy counter.* A built-in counter to account for number of copies taken is desirable.
- (iv) *Copying process.* Different processes such as wet and dry silver process, electrolytic or electrochemical process, electrostatic or xerographic process and diazo process have their own advantages and disadvantages.
- (v) *Cost per copy.* Obviously, the estimation of cost per copy of supplier/agent will be underestimation.

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- (vi) *Consumables.* Type of paper, maximum and minimum size of paper allowed, shelf life and supply period of coated paper, if any, and other consumables have to be seen. If all the consumables are indigenously available or available on Rupee payment at reasonable price it goes to the advantage of buying library.
- (vii) *Other features.* The copy quality especially legibility, durability and polarity on copying much depends on the copying process. Does the reader-printer allow copying from both positive as well as negative microform is another important consideration.

2 EVALUATION OF OFFERS

After obtaining offers from as many vendors of micrographic equipment as possible as per the existing purchase procedure of the parent organisation, the offers have to be critically evaluated against indenting specifications and needs of the micrographics facility. The first hurdle in this process is fictitious offers and counter or alternate offers. Fictitious offers are of the type where an Indian agent without finalising his agency would submit quotation and an indigenous offer might also come just to stop you from importing. We had experienced still a third variety once, wherein we had selected an item to import through an Indian agent and went through the ordeal process of obtaining DGTD clearance, FE release and a valid user licence by spending more than an year. Unfortunately, after collecting order, licence and all other necessary documents, the agent regretted that he no more represented the principal (or he had lost his agency!). The counter offers are those where, if you ask for a microfiche projector, one would quote for a brief case model microfiche reader explaining how it can also be used as a projector for group viewing and if you ask for an automated microfiche storing, retrieving and displaying unit (with reader-printer function), the supplier would quote for a passive card cabinet for storing and separate reader-printer. At times, counter offers can create enough confusion to conclude that indenting specifications are wrong. Thus eliminating all fictitious and counter offers and offers not meeting the requirements, one should proceed to evaluate remaining offers.

It is always safe to insist for full specifications and a printed catalogue of all the equipment before evaluation. Once a comparative assessment is ready, parties should be requested for arranging a demonstration and the same models in use at other places may be examined. Obtaining performance reports from other users of the equipment is quite useful provided,

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as mentioned earlier, you expect a very frank opinion. Quite often other users might give either vague or favourable reports to avoid displeasing of agents.

At this stage, critical evaluations appearing in professional journals and those obtained from professional bodies mentioned in Appendix-I would be quite useful. Once we had obtained expert opinion of one of internationally reputed professional bodies while buying an item. Surprisingly, the equipment later failed miserably for about 3 years not only with us but also with other two buyers in the city. The agent when failed to successfully instal and test the machine came up with so many reasons including the fact that the model is a refurbished one and no more manufactured by his principal. It may be noted here that what has been found good in U K or U S A may fail to perform well in India for many reasons including the fact that manufacturing and shipping places might be different for us. For example, all units to India are shipped from Singapore factory of a multinational company.

Finally, while evaluating offers, compromises of minor requirements and trade off with price become inevitable. One has to make judicious choice keeping all the data mentioned above in view.

3 INDIGENOUS OR IMPORTED?

At this juncture, it is worth digressing and discussing whether to go for indigenous micrographics equipment or imported ones and, if imported, whether to restrict to import through agents or to explore the possibility of importing directly where there are no Indian agents. Till date, indigenous micrographics equipment and their consumables of acceptable quality are not available. Even simple storing equipment which are heat resistant, fire proof and acid free and cleaning and writing aids are not available. The growth of indigenous manufacturers of micrographics equipment is very slow compared to that in the reprographics area.

Once convinced about need for an imported equipment, naturally one would play safe to go through Indian agents. As against this, it is always highly economical and worth exploring wider market for direct import of such items which do not need extensive installation, training and post-sale servicing. Thus all consumable items, simple handheld viewers, cleaning aids, micrographics pens, portable/brief case model readers and even table model readers can be imported directly at a much cheaper price than going through Indian agents. We have done the same at ISAC Library for many such items. In one of the cases, price (excluding duty) of a micro-

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fiche reader quoted by an Indian agent (not exclusive) was almost three times higher than that quoted by the manufacturer abroad. However, items like reader-printer need an agent for installing, training the operator and after sale servicing.

4 IMPORTING FORMALITIES

If decided to import directly or through an agent, then a series of procedural import formalities have to be met. Many a times, decision to import directly is adversely affected by aversion to lengthy and ordeal import procedures. The process starts with justifying the need with one's own authorities. Then the need for importing the same has to be convinced at the parent organisation level. At this stage, it is better to confirm the import provision with the help of up-to-date import manual and policy handbook of Government of India. In any case, items totally banned should be checked and eliminated. Even items under restricted list need a detailed and lengthy justification. However, all such items which are listed under OGL could be processed without much difficulty. Quite often, import restrictions are not enumerative but only indicative and hence at different stages the same can be interpreted to have been covered under different lists of import handbook.

It is always desirable to procure light-weight items, delicate items such as lenses which are likely to be damaged by humidity and rough handling and also those consumables which have short shelf life by air freight. Though minor, this aspect should not be ignored.

Having justified the item with authorities, depending on the procedure of the parent organisation, FE for the required CIF value of the item has to be obtained. If the item is not under OGL, then application for user licence has to be filed. A very detailed writeup with justification for importing such an item, the consequences of not importing, description of item and catalogue of the item have to be submitted to DGTD for obtaining a NMI certificate, and CDE certificate, if customs duty exemption is applicable to buyer. DGTD might turn down the request for NMI certificate citing names of Indian manufacturers for the item. If the potential buyer is sure that the products of these Indian firms are not suitable or they are yet to be marketed, the fact has to be effectively established by obtaining the actual offers of Indian manufacturers and places of existing installations. Some of these firms might have obtained licence, or applied for licence or a letter of intent might have been submitted to manufacture the said items. In one of our cases we approached the Indian manufac-

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turers indicated by DGTD and found no response over long time. However, if there is a comparable product within the country, the same need to be acquired dropping the idea of importing.

At this stage, it is necessary for R&D organisations, educational institutions and their libraries to note the special provisions of import for them against OGL and user licence and accordingly apply for import licence as well as customs duty exemption. Yet amount approximately equal to duty expected should be kept aside in the budget. Often customs duty paid at the time of clearance can be got refunded later depending on type of equipment and nature of buying organisation. Even at the time of customs clearance, there could be uncertainties about the rate of duty applicable. An interaction with customs authorities with an explanation about nature of item would help to minimise the duty as per provision.

5 MAINTENANCE AND POST-SALE SERVICE

As mentioned earlier, some equipment have to be bought through Indian agents either to avail of their installation, maintenance and post-sale service or as a consequence of exclusive agency or both. It is appropriate to discuss some of the problems connected with maintenance and servicing by Indian agents.

At the outset, one need not be surprised if a service engineer of an Indian agent starts experimenting by trial and error method with one's equipment in case it is one of the first few to have arrived in the country. Normally, not all the service engineers are trained abroad by the manufacturers. Apart from senior service engineer learning and training their new batches of service engineers the agent could use the buyer's facility as sales promoting demonstration unit for other potential buyers. At times this becomes a nuisance. Interestingly, the turnover of service and sales personnel is so high that one wonders whether agents act like training schools with customer facilities as laboratories.

Though one acquires all the recommended strategic spares, many a times the equipment will be down for want of a different spare or a spare exhausted. Not only a library has to spend on many unutilised spares but also has to wait for about 3 to 6 months till necessary spares are acquired, if the same is not stocked by Indian agent. We have kept a capital equipment idle for want of a pair of small toothed gear made of plastic or tufon. Very rarely, agents stock spares for the equipment they represent and service.

Many Indian agencies are immaturely changed or cancelled. As cited

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earlier, in one of the cases at our library, the agency is forfeited (or lost) by the agent even before the first unit arrived in the country. The result is that we have to forego all our efforts in obtaining an user licence. We understand that one or two agents listed in Appendix-II have already changed.

Another problem is that once we are wedded to particular make of equipment, the cost of consumables, spares and even annual service contract charges can be hiked considerably at random. Just at the time of revising this draft, we had an offer from an Indian agent for a reader-printer with unusual 30% commission on *landed cost*. Though party has originally cited that it is DGS & D approved rate, it later declined to produce proof. Hence again we are back to square one by retendering the item. For all the reasons discussed above, the overall post-sale service of many Indian agents is found grossly inadequate and unsatisfactory.

6 CONCLUSION

It is suggested that unified professional efforts have to be put in to develop and establish good micrographics facilities to make microforms more popular among users. In this direction a data bank of evaluated information about indigenous as well as imported micrographics equipment should be made available by national information and documentation centres and micrographics associations. Professional journals in the country should devote at least one column for exchange of information about new micrographics equipment and facilities among Indian libraries. Evaluation reports about new equipment manufactured in the country and those imported should be regularly brought out by competent experts and associations. More facilities either commercial or from government institutions are needed for getting hard copies of microform documents.

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APPENDIX I

**SELECTED SOURCES OF INFORMATION FOR GENERATING
SPECIFICATION AND CHOOSING MICROGRAPHICS
EQUIPMENT**

Associations

IMC—International Micrographic Congress, Box 34404, Bethesda, MD 20817, California, USA.

MAGB—Microfilm Association of Great Britain, 8, High Street Guildford, Surrey GU2 5AZ, England.

MCI—Micrographic Congress of India, C/o Library and information Service, Bhabha Atomic Research Centre, Trombay, Bombay-400 085.

NMA—National Micrographics Association, 8719 Colesville Road, Silver Spring, Maryland 20910, USA.

NRCD—National Reprographic Centre for Documentation. The Hatfield Polytechnic, Bayfordbury, Lower Hatfield Road, Hertford, Herts SG13 8 LD, UK.

Books

COSTRIGAN (Daniel M) *Ed.* 1978-79 *Grude to Micrographic Equipments*. V. 1 Production Equipments, V. 2 User Equipments. Ed 7. 1979. NMA, Maryland.

NELSON (Carl E). *Microfilm technology : Engineering and related fields*. 1965. McGraw-Hill Book, New York.

NMA. *How to select a microfilm reader or reader-printer*. 1974. Maryland.

STEVENSON (G A). *Graphic Arts Encyclopaedia*. 1968. McGraw-Hill, New York.

Journals

Journal of Micrographics (Bi-M) (NMA)

Microdoc (Q) (MAGB)

Microform Review (Q)

Reprographics Quarterly (Q) (NRDC).

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In addition reviews and evaluations of new products appear in *Library Journal*, *Special Libraries* and other professional journals.

Standards

Many national standards organisations such as ISI, BSI and International Organisation for Standards have brought out standards on various aspects of micrographics.

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APPENDIX II

LIST OF MANUFACTURES AND SUPPLIERS OF MICROGRAPHICS EQUIPMENT

- 1 M/s Agfa Gavaert. 275, North Street, Teteboro, N J 07608, U S A
(*Indian Agents* : (a) M/s Agfa Gavaert India Ltd, 1/122, Mount Road, Madras-600 006. (b) 23/2, Grant Road, Bangalore-560 001. (c) Merchant Chamber, 41, New Marine Lines, Bombay-400 020).
- 2 M/s Arcata Microfilm Corp, 700, South Main Street, Spring Valley, New York-10977, U S A.
- 3 (a) M/s Bell and Howell Ltd, 33-35, Woodthrope Road, Ashford, Middx. UK; (b) M/s Bell and Howell Co, 6800 McCormuck Road, Chicago, Illinois 60645, U S A (*Indian Agents* : (a) M/s Cinerama Pvt Ltd, Metro House, Mahatma Gandhi Road, Bombay-400 020. (b) M/s Macneill and Magor Ltd, 7th Floor Tower Block, Unity Buildings, Bangalore-560 002. (c) Mackinnon Meckenzie Building, Ballard Estate, Bombay-400 038. (d) Data Reprographics (India) Pvt Limited, Unity Buildings, Tower Block, 2nd Floor, Bangalore-560 002).
- 4 M/s Canon Inc, Export Division, 11-28, Mita, 3-Chome, Minatoku, Tokyo 108, Japan; (b) M/s Canon U S A Inc, 10, Nevada Drive, Lake Success, New York, NY 11040 U S A (*Indian Agents* : (a) Services Incorporated, 108, Siddhartha 96, Nehru Place, New Delhi-110 019. (b) Batlibai and Co Ltd, Apeejay House, 6th Floor, Dr V B Gandhi Marg, Bombay-400 023).
- 5 M/s C Z Instruments India Pvt Ltd, Court Chambers, 35-A, New Marine Lines, P B No 11108, Bombay-400 020.
- 6 M/s DASA Corporation, 15, Stevens Street, Andover, Massachusetts 01810, U S A.
- 7 M/s Das Reprographics Pvt Ltd, 5, Park Mansions, 57 A, Park St, Calcutta-700 053.
- 8 M/s Eastman Kodak, 343, State Street, Rochester, New York 14650, U S A (*Indian Agents* : (a) M/s Kodak Ltd, 8 A Greams Road, Madras-600 006; (b) Kodak Ltd, Kodak House, Dr D Naoroji Road, Bombay-400 001).
- 9 M/s Ednalite Corporation, Memory Display Systems Division, 200 North Water Street, Peeskill, NY 10566, U S A.
- 10 M/s Elliot Company, B K P O Box 3240, Pittsburgh, Pa 25230, U S A.

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- 11 M/s Eugene Dietzgen Co, 2425, North Sheffield Ave, Chicago, I 11. 60645, U S A.
- 12 M/s Finlay Microfilm Limited, Finlay House, P O Box 68, Woodside Road, Amersham Bucks, HP7 OBH, England.
- 13 M/s Fujitsu Limited, 1015, Kamikodanaka, Nakabara-Ku, Kawaski 211, Japan (*Indian Agent* : M/s Camera Works Pvt Ltd, India House, Opp GPO, Walchand Hirachand Marg, Bombay-400 001).
- 14 M/s GAF Corporation, 140 West, 51st Street, New York, NY 10598, U S A.
- 15 M/s Gaylord Bros, Inc, TWX 710, 545-0232, Box 4901, Syracuse, NY 13221, U S A.
- 16 M/s General Computing Corp, 444, Park Avenue South, NY 10016, U S A.
- 17 M/s Heit Inc, Karl, 979 Third Avenue, New York, NY 10022, U S A.
- 18 M/s Hitachi Limited, 5-1, Marunouchi, 1-Chome, Chiyoda-ku, Tokyo 100, Japan (*Indian Agent* : M/s Hitachi New Delhi, Liaison Office, 4th Hansalaya Building (4th Floor), 15, Barakhomba Road, New Delhi-110 001).
- 19 M/s Image System Inc, 11244, Playa Court, Culver City, California 90230, U S A.
- 20 Information Design Inc, 3247, Middlefield Road, Menlo Park, California 94025, U S A.
- 21 M/s Itek Business Products, Itek Corp, Rochester, N Y 14603, U S A.
- 22 M/s Iwatsu Electric Co, Ltd, 7-41, Kugayama, 1-Chome, Suginami Ku, Tokyo 168, Japan.
- 23 M/s Ixodack India Ltd, SA, Greames Road, Madras-600 006.
- 24 M/s Izon Corporation, 45, Research Drive, Stanford, Connecticut : 06906, U S A.
- 25 M/s Keuffel and Esser Co, 20, Whippany Road, Morristown, N J 07960, U S A.
- 26 M/s Konishiroku Photo Ind. Co, Ltd, Shinjuku Nomura Building, 26-2, Nishi Shinjuku 1-chome, Shinjuku ku, Tokyo-160, Japan.
- 27 M/s Library Resources Inc, 301, East Eric St., Chicago, 111.60611, U S A.
- 28 M/s MEMCOM International, 450 E, Chapman Ave., Suite 207, Orange, California, 92666, U S A (*Indian Agent* : M/s International SIT 46, Karani Building, New Charani Road, Bombay-400 004.).

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- 29 M/s Memorex Corporation, 1180, Shulman Ave, Santa Clara, California 95052, U S A.
- 30 M/s Micobra Corporation, 176, King Street, P O Box 1187, Hanover, Massachusetts 02339, U S A.
- 31 M/s Micro Design, 857, West State Street, Hartford, Wisconsin 53027, U S A.
- 32 M/s Micro Display Systems, 2, Penn Plaza, New York, N Y 10001, U S A.
- 33 M/s Microfilm Products Inc, 40 West, 15th Street, New York, N Y 10011, U S A.
- 34 M/s Micro Information Systems Inc, 467, Armour Circle, N E Atlanta, Georgia 30324, U S A.
- 35 M/s Micro Scan Systems Inc, 54, South Main Street, Pearl River, N Y 10965, U S A.
- 36 M/s Minolta Camera Co, Ltd, 30, Azuchi-machi, 2-chome, Higashi-ku, Osaka 541, Japan.
- 37 M/s Minolta Corporation, 101, Williams Drive, Ramsey, New Jersey 07446, U S A.
- 38 M/s Morgan Information Systems Inc, 193, Constitution Drive, Menlo Park, California 94025, U S A.
- 39 M/s National Cash Register Co, Industrial Products Division, Dayton, Ohio 45409, U S A (*Indian Agent* : Cash Register Co. (India) Pvt Limited, 40, B B D Bag East, Calcutta-700 001).
- 40 M/s National Micrographics Systems Inc, 926, Philadelphia Avenue, Silver Spring, Maryland 20910, U S A.
- 41 M/s Pamtek Manufacturing Inc, 4221, Hollis Street, Oakland, California 95014, U S A.
- 42 M/s Quantor Corporation, 1525, Comstock, Santa Clara, California 95050, U S A.
- 43 M/s Rank Xerox Limited, 338, Euston Road, London, NW 3 BH, U K (*Indian Agents*: (a) M/s Modi Xerox Limited, Modipuram-250110, U P, India; (b) No 2/1, Kasturba Road, Bangalore-560 001.).
- 44 M/s Readex Microprint Corp., 5, Union Square, New York, N Y 10003, U S A.
- 45 M/s Realist Inc, N 93, W 16288, Megal Drive, Menomonee Falls, Wisconsin 53051, U S A.
- 46 M/s Remington Rand Office Systems Division, P O Box 171, Marietta, Ohio 45750, U S A.
- 47 M/s Ricoh of America, 350, Fifth Avenue, New York, N Y 10001, U S A.

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- 48 M/s SFS Saul KG, 4898, Ronson Court, Suite F, San Diego, California, 92111, U S A.
- 49 M/s Sharp Corporation, 22-22, Nagaike-cho, Abeno-ku, Osaka 545, Japan.
- 50 M/s Stromberg Datagraphix Inc, P O Box 2449, San Diego, California 92112, U S A.
- 51 M/s Toshiba Corporation, 1-6, Uchi Saiwai-cho, 1-chome, Chiyoda-ku, Tokyo 100, Japan.
- 52 M/s University Microfilms International, Equipment Order Department 300 N, Zeeb Road, Ann Arbor, Michigan 48106, U S A.
- 53 M/s Washington Scientific Industries, Longlake, Michigan 55356, U S A.
- 54 M/s 3M Company, Microfilm Products Division, 3M Centre, St. Paul, Minnesota 55101, U S A. (*Indian Agent: M/s Associated Printers, (Madras) Pvt. Limited, 3M Products Division, P B No 318, 165, Mount Road, Madras-600002*).
- 55 M/s Library Microfilms & Materials Co, 707, Augusta Street, Inglewood, California 90302, 213/678-0036, U S A.
- 56 M/s Information Design Inc, P O Box 2064, 3247 Middlefield Road, Menlo Park, California 94025, (415) 369-2962, U S A.
- 57 M/s Microphax Limited, 36, Nuffield Way, Abingdon, Oxon OX14 1TF U K.

About the Author

Dr. M. S. Sridhar is a post graduate in mathematics and business management and a doctorate in library and information science. He is in the profession for last 35 years. Since 1978 he is heading the Library and Documentation Division of ISRO Satellite Centre, Bangalore. Earlier he has worked in the libraries of National Aeronautical Laboratory (Bangalore), Indian Institute of Management (Bangalore) and University of Mysore. Dr. Sridhar has published four books ('User research: a review of information-behaviour studies in science and technology', 'Problems of collection development in special libraries', 'Information behaviour of scientists and engineers' and 'Use and user research with twenty case studies') and 74 research papers, written 19 course material for BLIS and MLIS, presented over 22 papers in conferences and seminars, and contributed 5 chapters to books. **E-mail:** sridharmirle@yahoo.com, mirlesridhar@gmail.com, sridhar@isac.gov.in ; **Phone:** 91-80-25084451; **Fax:** 91-80-25084475.

