

# Micrographics in Defence

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## INTRODUCTION

The organisation which first made use of Micrographics in the world was Defence, as far back as World War - I. Microfilming was used as one of the tools of warfare in the activity of spying. Even currently the James Bonds of today continue to make use of this technology. However, Defence does not merely mean fighting or warfare, it embraces within it numerous activities such as selection, recruitment, training, placements of units and personnel, logistics, financial management, production of military hardwares etc. As a matter of fact, if all activities were to be listed, it would be a voluminous document which itself might need micrographics. Out of these, I am shortlisting the following to indicate the potential for exploitation of micrographics in Defence:-

- (a) Recruitment/Selection/Pre-induction training.
- (b) Post-induction training and career planning.
- (c) Finance Management.
- (d) Design, development, manufacture and Quality Assurance of military hardware.
- (e) Logistics/troops movement.
- (f) Strategic Application like Planning, execution of military operations.
- (g) Record Management (operational and non-operational)
- (h) Standardisation and Codification.

Before we go further, I would like to remind you of the advantages of utilisation of micrographics which are; security, savings of space, time and manpower, easy retrieval and reproduction, quick transmission of documented information. All these will have some bearing or the other on the items mentioned above which we shall now consider.

## RECRUITMENT, SELECTION, PRE-INDUCTION TRAINING

Selection/recruitment of Officers and other ranks in the three services is a voluminous and continuous ongoing exercise. For example, let us take the case

of Officers. Every six months there are about fifty thousand applicants out of which 400 or so are selected for undergoing training at NDA. At the NDA the equivalent of a 'Janam Patrika' (Horoscope) starts. The activities of the cadets are under continuous monitoring and the recordings of the instructors are required to be maintained till they pass out. By employing micrographics it should be possible to weed out the unsequential records, microfilming the significant ones and destroying the original papers. Very efficient and easy methods are now available for quick retrieval of documents, by which as and when any reference to a past significant entry is required, it can be done without having to maintain voluminous old records. In comparison to officers, the intake of soldiers, airmen and sailors is colossal, probably 10 to 20 times more of the work involved in case of officers. I leave it to your imagination to gauge the benefits and the importance of micrographics in their cases.

#### POST-INDUCTION TRAINING AND CAREER PLANNING

Post-induction training is aimed at overall development of a service man to make him better equipped to shoulder higher and higher responsibilities as he climbs the ladder. It also helps in his becoming more effective during discharge of his duties in any specialised field. A doubt can arise in your minds, as to why an ordinary computer cannot serve the purpose. I shall clarify this point in my conclusion. I have mentioned it here so that this point does not nag your minds.

#### FINANCIAL MANAGEMENT

All documents pertaining to finance are, of necessity, required to be preserved for a long duration. Many of the documents are needed only for reference purposes. Although the need in defence is common to the need in other organisations/departments, there is significant difference which makes the defence requirement unique. This will be clear by an example. It would be of little value for a hostile country to learn that Shri Bihari Lal, Post Master of Bareilly has been granted special pay for acquiring higher education in telecommunications, but the fact that Commander Bihari Lal of Indian Navy has been granted special pay on account of his being a sub-marine expert or Major Bihari Lal being granted special pay because he is a trained pilot in the Army Air Corps etc., are informations which we would not like our enemies to know for obvious reasons. Similarly, the documents on payment of Rupees One Million to the Irrigation department for desilting a canal would need no security classification, whereas documents relating to payment of Rupees One Million for executing the work of constructing a Helipad in an Operational Area would need a high security classification. In Defence, as in other departments, by employing micrographics

we not only save space but also render much higher degree of security in this field. The Controller General of Defence Accounts caters for lakhs of employees of the three services and Ministry of Defence. He is required to exercise control of thousands of Defence Units, spread all over the country. Voluminous documents are required to be preserved by his subordinate offices for long durations and there is considerable frequent movement of bulky documents. By establishing a few mother units and by providing reader printers in smaller units, considerable modernisation can be achieved, resulting in enhanced efficiency and greater economy. Thus, Microfilming can be of immense help to us in the field of Financial Management.

#### DESIGN, DEVELOPMENT, MANUFACTURE AND QUALITY ASSURANCE OF MILITARY HARDWARE

In the development stage, a number of changes are made on the drawing board. In the experimental stage, in many cases, it is desirable to have a print of the sheet before amendment. This is necessary specially when there is a need for reworking from an earlier take-off stage. Without employing the microfilming technique in such case, we could be forced to start ab-initio. For productionisation of each item, engineering drawings and specifications are needed. If you consider a very common item like a Fountain Pen, it would need about 10 drawings and references to about 6 specifications. Again, for inspection, you would need gauges for which also drawings and specifications will be required. From this, you can imagine how many drawings/specifications would be required in case of a rifle. The figures for items like Aircraft, Submarines, Tanks are mind boggling. For free flow production these drawings are perforce required to be used on the shop floors resulting in their becoming oily and unusable necessitating frequent replacements. By employing the micrographic system the present system of taking out ammonia prints can be done away with and reader printers can help in timely provisioning of such drawings/specifications. In the Defence, each main equipment, specially warlike equipment, History Sheets (HS) are maintained from womb to tomb for each of them. When an equipment is transferred from one unit to another the HS accompanies it. The HSs are of great help during maintenance and defect investigations. In some cases, even the target sheets on which firing has been done, are maintained by QA units. Instead of retaining all these sheets/documents, they could be stored in the form of microfilm/fische.

#### LOGISTICS/TROOPS MOVEMENTS

In the Defence Services, logistics is the life line. What is the requirement, by whom it is required, where it is to be supplied, when and how to be supplied

are the questions which arise before a supply is made. However, after execution of the work, the supplier has to be in possession of proof of demand/supplies in the form of documents. The supplying agencies in Defence have to be on their toes all the time. During periodical checks, audits and inspection and also during enquiries/investigations, in case of failures, copies of all such documents are required to be produced/reproduced. In Defence, you cannot afford to lack in such matters. But then the documents are so voluminous and bulky and many a time you do not know whether these are ever going to be needed or not. What is the answer? Obviously Micrographics.

Movements of units at short notice are a common, regular and unique feature of the Defence Forces. Secrecy of the movements is also to be maintained. Each unit has its own records which are again bulky and difficult to transport. By resorting to micrographics what is transported, by trucks can be carried in a few brief cases, with better security.

#### STRATEGIC APPLICATIONS

Strategical activities which are so vital for the defence of the nation are a peculiar requirement of the armed forces. Here we come to the vital requirement of security. Micrographics are like a two edged knife. One may say; it is easier to pilfer the microfilms or fisches than to take away a bulky file. I would say; it is easier to provide security cover to a small room where all these microfilms/fisches can be stored in a small almirah and access to that area is limited, than to a large area where more man-power and other elaborate arrangements may be required to provide security cover for a large volume of documents and where accessibility control would also be very difficult.

It would be easy to pass on documented information through microfilm or fische to any area under an escort rather than to send original paper documents under elaborate security arrangements. These are few examples to quote the advantages of micrographics as far as strategy/security is concerned.

#### RECORD MANAGEMENT

Any large organisation with such a vast network requires a very high percentage of manpower to be centered around documentation and its procedures. You may be aware that the amount of paper work generated by such organisations is beyond imagination. This can be categorised into two types as far as Defence is concerned. These are 'operational' and 'non-operational'.

(a) *Operational*: Under this category, records like battle orders, strategic/tactical plans, movement of troops etc are held. These records require top-most

secrecy. Here again, the micrographics can be exploited to great advantage. Further, a document may get generated at Headquarters level and may have to go down to unit/station level. These documents can be passed on for comments to the lower levels in microfilm form and availability of reader printers upto unit level can take care of the rest.

(b) *Non-Operational*: Here again the service records of all personnel and officers, have to be maintained and records kept for a long period. The most important of all are the financial and medical documents of all officers and personnel. This demands a vast records area. Sometimes, it becomes difficult to trace the old records of an officer because of the large area, voluminous documents and tedious manual retrieval. These problems can be overcome if micrographics are introduced with facilities for retrieval.

#### STANDARDISATION AND CODIFICATION

Army Standardisation Organisation will have its own technical information centre, where a large variety of technical books on numerous subjects/foreign specifications and all technical information pertaining to national and foreign products are stored, retained and distributed. Defence Standardisation Directorate is one such department where all technical details pertaining to defence needs of both Indian and foreign organisation are stored. We also get information from abroad and microfilms/fisches authenticated original document. Micrographics have become the order of the day and with a little bit of innovation and creativity, it can be put to use in Defence in almost all fields.