Personal Computers for unit Commanders

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INTRODUCTION

One of the most fascinating developments of the 20th Century hs been computer revolution. Infact, the Computer revolution rivals industrial revolution of the 19th Century. In brief, whereas industrial revoluton improved the "muscle power" the computerisation has ticked the "brain power". They have improved man's ability to analyse, compute and communicate at a rapid pace never foreseen earlier. The computer revolution has been therefore, rightly termed as 'information revolution', 'electronic revoluton' and 'Second industrial revolution'.

SOME BASIC FACTS ABOUT 'COMPUTER REVOLUTION'

Computer is basically an electronic device, that has ability to accept data, store it internally till user needs it and automatically execute a programme of instructions, perform mathematical, logical and manupulative operations on the data stored and report the results thereupon. The earliest data processing devices were simple use of figures, pebbles, sticks, knots on strings, scraches on rocks or notches on the sticks for record keeping. The first computer ever developed was abacus which is even now used widely as a calculator. However, the use of electro-mechanical machine for automatic processing of data recorded by holes punched on paper cards was developed in the 18th century. Ever since Charles Babbage, the first person who in 1833 developed the mechanically steam driven computing machine, to first Electronic Numerical Integration and calculator (ENAIC) weighing over 30 tons developed in 1946, the computer development thereafter has been phenomenal. In the last two decades the quantum jump has been to 4th or probably the 5th generation of computers which use large scale integration (LSI) both for logic and memory, replacing magnetic tapes with micro electronic semi-conductors-emphasis being on micro miniaturistion reducing size and power requirements on one side, while increasing the processsing speed on the other. Thus, the whole gamut of computer technology is towards micro miniaturisation on a chip to small portable size typewriter units associated with memory system and artificial intelligence, having variety of inputs, outputs and secondary storage devices called peripherals. Micro processor unit (MPU) is an individual micro computer central processing unit (CPU) on a tiny chip, making it an important milestone in human history

which has made a more far reaching impact on our society than any other single invention that one can think of in the last two centuries. The research is on to enhance slower processing speed, smaller memory, lesser input/output capabilities which has resulted in a constant contest in computer potentialities and requirements in unknown situations with insufficient data. Computers, are thus, coming to our aid liberating us from heap of unwanted data and mental drudgery giving us time for conceptual thinking and creativity.

WHAT IS A PERSONAL COMPUTER (PC)

Small size, low cost, smaller memory and computing power of microprocessors and micro computers have resulted in development of portable personal computer (PC) which have commercialised video games and word processing. They have accelerated the "distributed processing trend" and are extensively used for automation of data processing in offices, factories and homes. Broadly speaking, a PC is a small general purpose processing system that can perform wide variety of tasks as per users instrutions. These are designed to be used by one person at a time i.e. single user environments, though PCs with multi-terminals also have been developed. Their use can greatly enhance the decision making process of top executives by providing right Mangement Information Systems (MIS) to them.

A number of factors determine the performance characteristics of a PC i.e. the type of microprocessor used, clock speed of CPU and primary storage capacity available. A PC with 32 bit microprocessor chip will be faster than 16 bit microprocessor chip which in turn will be faster than 8 bit system. The clock speed of the chip is measured in megahertz (MHZ) that directly affects the speed with which an instruction is executed. The more the clock speed, the faster would be the PC. Also, if primary storage capacity is more, there would be fewer time consuming disk operations.

So far all PCs are being imported. However, very soon India's first PC will be in the market ushering us in dramatic changes in our living and working ethos. It is learnt that indegenious PC being developed by Semi Conductor Complex, Chandigarh will have a single floppy and 128k memory. It will work on a black and white television set and will be priced around Rs. ten thousand only i.e. less than a colour television set. There is growing emphasis on sophisticated software and graphics and development of compatibility in Application Software and development of Operating Systems. Knowledge Systems with artificial intelligence capable of giving expert advice or analyzing complex information within particular field are likely to be commercially available soon. There is also growing interest in the problem of computer safety. This aspect is very vital in military usage of computers.

UTILITY OF PC IN A UNIT

PC has immense potential usage in a unit which can be harnessed in a big way for computerising a large variety of operational and logistical data called applictions that will enhance combat and administrative effectiveness of the unit, thus reducing files, office space, typing and filing effort and man-power presently required to do all this drudgery. Major unit applications which can run successfully on a PC are given below:-

(a) Command, control, communication and intelligence system (C^3I).

(b) War gaming to test tactical concept and to train and test sub unit commanders.

(c) To test effectiveness of a weapon system.

(d) Training and development programming.

(e) Fire planning.

(f) Critical deficiencies in man power, and controlled stores and maintenance of long rolls, sheet rolls and field service documents.

(g) Vehicles, FOL, Ration, Clothing, Furniture state and their stock taking and inventory control.

(h) Maintenance of imprest, public, regimental and canteen accounts.

(j) Preparation of acquittance rolls and computing pay and allowances including TA/DA bills i.e salary administration.

(k) Defence bricks, load tables and move schedules of men and materials.

(i) Analysis of works procedures and planning data.

(m) Performance appraisal including pending disciplinary cases, court of inquiry or boards of officers.

(n) Reports and returns and compilation of planning data and schedules.

(o) Planning of war wastage rates in men and materials.

(p) Hospital admission, discharge, diagonosis, treatment, medicines inventory control and recategorisation of patients.

RESISTANCE/HESITANCY TO PERSONAL COMPUTERS

We, in the armed forces, have by and large, been left untouched by the PC Wave. This is probably due to lack of awareness, resources, knowledge and resistance to change. An average non-technical officer thinks of com-

puter as a complex electronic device to operate needing some kind of specialist knowledge which the elite in corps of signals perhaps only possess. We feel like M Meacham who had said "computers are fantastic; in a few minutes they can make a mistake so great that it would take many many men many months to equal it" which is a fallacy. There is also growing misconception that if quality of data fed in the computer is not updated, it deteriorates, resulting in familiar phenomenon of GIGO (Garbage in Garbage out) and that "the men have become the tools of their tools", i,e. the computers. There also exists wrong notion that only big computers with associated paraphernalia are necessary evil perhaps in higher headquarters and all that a good unit commander needs is a live wire Adjutant, Quartermaster, Subedar Major and a Head Clerk to see through his operational, administrative and office management needs. Again, many of us due to lack of awareness are frightened by the computers. We fear that our command function and authority will be greatly reduced and diluted by excessive use of the personal computers. This trend in non-technical officers conglomerates adding pressures on typical regimental and staff officers and the office staff. This is far from truth and reinforces the fact that an officer's carrier must be a life time of learning new processes and techniques to optimize his combat effectiveness. Progress always means change but change does not always mean progress. We must progress with change to meet our changing responsibilities to meet new challenges in our operational and administrative readiness. Our quest for computerisation to cnhance our combat effectiveness must clearly grow as evident by veritable flood of its knowledge on how, why, where and when of management of our combat power through computerisation or else we will become obsolete and simply become incapable to adjust to rapidly changing combat stress. If we do not adjust to rapid technological change, we will soon simply become uneducated for our jobs by standing still. If one visits editorial office of Living Media (India Today Magazine) one finds no papers, typewriters or files. from customer's subscription to collection of latest events from its correspondents all over the world, everything is computerised and handled by a handful professionals. One would need collosal effort in men and materials if publication of 'India Today' was done by the outdated techniques of management that we follow in the armed forces. Customers service and banking facilities in Bank of America branch in New Delhi vis-a-vis any of our State Bank of India branches, where trade unions and other internal and external pressures and attitudinal problem have kept computerisation at bay, speak in favour of installation of personal computers in the banks. It has thus become apparent that updating the work technology in all spheres of activity in our systems inculding armed forces is long over due and without it the orgnisational degeneration cannot be stemmed.

SELECTION OF PC AND TRAINING NEEDS

Selection of PCs for unit commanders will have to be worked out carefully. It will be based on such factors like memory requirements, cost effectiveness, robustness, secrecy devices, after sales service and compatability and capability of system upgradation with existing and future acquisitions. Standard software packages useful to unit commanders will also have to be purchased alongwith PCs. We must give a thought on training unit commanders and potential unit commanders on PCs. It takes about 8 weeks for an individual to get used to computer programming if he already knows mathematics upto 10th standard. Initially computer programming courses for unit commanders can be conducted at College of Combat, MCEME and MCTE, alongwith installation of PCs in their units so that unit commanders trained on PCs can use their newly acquired knowledge. As the PC wave catches on, such courses can be even run at Divisional and command levels. The approach will help in building and training large number of computer professionals and computerisation on large number of applications on the PCs as discussed earlier and Data Base Management systems (DBMS) will help in transfering existing operational and administrative documentation on data base. Data Base will have following advantages for unit commanders:-

(a) Information supplied will be more valuable because it will be bases on a comprehensive collection of data instead of existing files which contain the data for one application only.

(b) Apart from reports and returns it will be possible to meet specific requirements of the users.

(c) Duplication of data will be minimised and errors due to discrepancies between two files will be eliminated.

(d) Amount of input preparation needed will be minimised by the single input system.

(e) Great deal of timings and cross references done presently will be saved as DBMS will handle construction and processing of files and retrieval of data for use.

(f) It will help in development of integrated system.

(g) It will protect data against unauthorised access.

(h) It will safeguard data against corruption.

(j) It will provide recovery and restart facilities in case of hardware or software failure.

CONCLUSION

An effort has been made on needs of computerisation in the armed forces at grass root levels by authorising personal computers at unit level. The real improvement in quality of work and enhancement of combat effectiveness will depend on how fast we change with times. We in the armed forces are still not at the start point whereas rest are far ahead in the race for computerisation. Clive Sinclair, the designer of the first Pocket Calculator has said "The 5th generation of Computer is the greatest battle ground of the Century. It will determine a new balance of power in the world. Just as the West found itself oil dependent on Middle East in the 1970s, it will find itself knowledge dependent on the Japanese in the 1990s where knowledge really will be power". In Western Countries computer education has been introduced at school level and in UK every primary school can boast of having a micro computer. It is sad inded that our majority of the schools do not have basic teaching aids like black boards and charts. I, as an officer with 25 years of service had first exposure to basic computer knowledge in my MBA Course last year which should actually form part of secondary school curriculum. Of late, Goverment of India plans to cover 2-5 lakh schools with coomputers by 1990 with budgetry provision of Rs. three hundred crores. It is a modest beginning and it's time we took the computers at unit level as well to enhance combat effectiveness of unit commanders.