

SPEECH**TECHNOLOGY AND THE FINANCIAL SECTOR***

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I am very happy to be associated with the Annual Convention of the Computer Society of India (CSI) being held in Bombay now after a lapse of six years. CSI has played a very active role in promoting the use of information technology, in all its aspects. This Convention comes at a time when the Indian industry, trade and the financial sector are going through a phase of progressive transformation and readjustment and the economic environment is being made more conducive to rapid technological change. We are into the third year of the programme of economic reforms, initiated in July 1991, and continue to move ahead with the process of structural adjustments. There is a general agreement, more than ever before, that the economic system must assume higher standards of efficiency and productivity. At the policy level, a major effort is afoot to correct and ease the structural rigidities of our system and increase the incentives to perform more productively and competitively. Organisations and institutions are being compelled to re-examine existing ways of doing business and question their traditional methods, procedures and practices and move towards the evolution of new organisational culture and processes. A change of work systems and culture has become necessary to meet the new challenges. In this task, an aggressive technology orientation has to be recognised as a must.

Technology and its Role

2. Technology, in fact, has today become the principal driving force for long-term economic growth. It is through productivity increases that societies have achieved rapid advances in economic growth. It has been estimated that one-third to one-half of the growth experienced by industrially advanced countries has come from

technological progress. Economic growth results both from slow and steady improvements in technology as well as from the "breakthrough" inventions. Breakthrough inventions are, however, unpredictable and such inventions may at times change the direction of the entire industrial structure. Schumpeter made a fundamental distinction between invention, which was the discovery of new techniques and innovation which consists of the practical application of an invention in production for market. Invention is the contribution of the inventors while innovation is the task of the entrepreneur. The "technology fusion" approach blends incremental technical improvements to create new products. While modern technology strategies include both, the 'breakthrough' and 'fusion' approaches, technology fusion is normally the tool for creating new products and materials. There is a strong relationship between technology fusion and a manufacturing organisation and this is converting firms into 'thinking' rather than mere 'producing' organisations.

3. Technology has, so to say, become the fuel for rapid change. Across the world, sophisticated software applications and advances in telecommunications have interacted with rapidly improving hardware technology, profoundly altering management processes and the manner in which products and services are organised. This process has also resulted in a dramatic increase in trend productivity which is necessary to achieve a sustained increase in real incomes and standards of living. The present state-of-art information technology has allowed organisations to completely wipe out the differences in time as well as distances. There are net-works everywhere - at the global level, at the country level and in various regions within a country. Communications through satellites are fast and effective. Some have even described this as the "end of geography". Meanwhile, computers have shrunk

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in size but grown in potential. It has moved from the desolate computer room to executive desks.

4. Information technology is no longer considered as mere transaction processing and management information system. In its wide definition, it implies the integration of information system with communication technology, and of innovative applications to product manufacturing, design and control. Knowledge-based systems and artificial intelligence, process automation and robotics, and voice and data communications design are the emerging technologies, gaining wide acceptance and usage.

5. The aim of technology is also not to shed labour but in fact, to use it better. The increase in computing power has helped world industries to slash unit costs of executing and processing transactions. It has also helped in the creation of new products and methods of business, which was previously possible only in theory. It is reported that American securities firms in the Wall Street, for instance, spent close to US\$ 8 billion on technology during 1991-92 which was four times the profit they made in 1989-90.

Information Technology: The Indian context

6. The progress of the IT industry in India has been impressive on several counts. The industry's total turnover is placed at Rs. 3,454 crore with a healthy performance in software exports. The top 20 among these companies account for a 57 per cent share of the industry. The different product segments of the industry have also recorded impressive growth: software exports (Rs. 670 crore -up 58 per cent), domestic peripheral sales (Rs. 182 crores -up 44 per cent) and training segment (Rs. 142 crore -up 37 per cent). LAN servers sales amounted to Rs. 74.7 crores and packaged software Rs. 170 crores. There has also been a healthy rise in the production of micros.

7. There is a need for developing the competitive character of the domestic market. Technology sophistication must go along with a 'people-orientation'. In a country like ours where vast knowledge-gaps still exist, it is imperative to continue to improve the user-friendliness of technology and to embark upon an aggressive

programme of technology education. Indian hardware and software suppliers should invest more in educating users, providing professional advice, and in improving the standards of 'end-user' computing. Links between local suppliers and users, which are weak at present, should be strengthened.

8. A computer system is as versatile as the software that is made available with it. An over \$100 billion industry and a highly competitive market, high quality software constitutes the key for putting in place an effective and stable technology framework. India has the potential to make a great headway in the field of software export provided the Indian software exports industry gears itself to the changing global demands for software. What needs to be nurtured however is the creative spark which will lead to advancement in technology as programmers continue to dream up new software in evolving computer hardware. What must be remembered is that it is precisely this creativity which has led to "multi-media" computer networks and palm-top PCs which can read handwriting. The software prowess, of which Indian programmers are capable, must get reflected in high quality exports. Already, in an attempt to develop our own software agenda, the Government has lowered the import duties on foreign hardware and is aggressively encouraging schools, universities and other institutes to train more programmers. We have now close to a 100,000 software professionals who are also undertaking contract programming for some of the well known international firms.

9. According to the Electronics and Computer Software Export Promotion Council (ECSEPC), exports of computer software and services rose to about \$281 million during 1992-93, from \$207 million in 1991-92, registering a growth of about 36 per cent. The US accounted for 50 per cent of India's total exports, followed by West Europe (31 per cent), South East Asia/West Asia (16 per cent), and Australia (3 per cent) during 1992-93.

10. It is expected that India's exports would amount to \$660 million by 1996 on the basis of the trend rate of growth. According to World Bank

and NASSCOM projections, a rapidly growing off-shore programming activity will help Indian software exports exceed the \$1 billion mark by 1996. At this rate, the software exports could move upto a \$3 billion mark by 2000 A.D. Currently, software and service account for 34 per cent of the total \$300 billion global infotech market. By 1995, this should go up to 44 per cent of a \$493 billion market. The total world software imports, are expected to grow to \$7.4 billion by 1996 from \$1.4 billion today. Many of the world's leading Trans-nationals which have identified India's potential have already set up software development centres in India and a recent report has placed India as the most preferred software vendor. Taiwan and Singapore in Asia followed India as the next favourite countries. The speed of entry is thus critical, although the mode of entry could vary from firm to firm, depending upon its value chain.

11. The export of software normally takes on any of the following three forms - (i) physical; (ii) non-physical; and (iii) by deputation of personnel to the site of the client. In recognition of these structural features of software exports and the attendant logistical and operational issues, several modifications have been carried out in export procedures in order to promote ease in software exports. While in the physical form, exports of software are required to be declared in the usual GR/PP form, in the non-physical form, i.e. through direct data transmission via satellite links, etc. a separate form (SOFTEX) has been introduced. An exchange earner's foreign currency scheme has been introduced last year which allows software and service exporters to meet their exchange requirements out of their EEFC accounts by utilising the funds therein for various approved purposes. Where the software exporters are not maintaining EEFC account, block allocation of foreign exchange to meet the contract related expenses abroad is authorised. The condition regarding repatriation of at least 50 per cent of contract value has also been relaxed.

12. In addition, as a part of the general relaxation and dismantling of the rigidities of exchange control regulations in order to promote exports, banks have been given considerable powers to

release exchange for business travel, seminars, conferences and training abroad. Freedom has also been allowed for the engagement of foreign technicians and nationals. Software exporters have also been permitted to establish joint ventures and/or marketing subsidiaries and offices abroad for effective promotion of Indian software products and services in the foreign market.

Technology and the Financial Sector

13. I would now like to briefly turn to the technology needs in the financial sector. Banks in the public sector are confronting a host of problems today, such as decline in productivity and efficiency and erosion of profitability. A significant deterioration has occurred in the quality of the loan portfolio, affecting banks' income generating capacity. The recently published financial statements, based on the revised RBI norms for income recognition, accounting and disclosure, have placed the financial problems being faced by banks under the public glare. Even as the balance sheets of the banks are being strengthened by the injection of additional funds, banks are drawing up time-bound programmes for improving their productivity, efficiency and profitability. In any such programme, technology has to play an important role. Banking belonging, as it does, to an industry, which is the largest processor of information and data, the active use of technology is inevitable. The issue in the Indian banking today is no longer whether technology is needed. The real issue is how much, how quickly and what type.

14. There are already some areas of banking in which computerisation has made significant progress. The major examples are, the introduction of computerised clearing of cheques at the metropolitan towns and establishing links with the international communication system of SWIFT. With an annual growth rate of 12 per cent in the number of cheques to be processed in the metropolitan towns, I wonder what would have happened if we had not taken steps to introduce cheques based on MICR technology and computerised clearing. The daily volume of clearing instruments at Bombay is now estimated to be 7 lakhs.

15. Forty three banks are currently connected to the international communication system of SWIFT. I understand that in April 1993, the outward message traffic through SWIFT was 32,211 while the inward traffic was 1,18,588. The domestic communication network of BANKNET has 30 banks as its members but is yet to stabilise.

16. The four major objectives of computerisation in banking are to improve (a) customer service, (b) house-keeping, (c) decision making, and (d) productivity and profitability. A question that is often raised is whether in order to achieve these objectives computerisation is at all necessary. Speed and accuracy are the hallmarks of computers. Computers have a vital role to play wherever there is a huge volume of transactions and the work has to be completed within a specified time frame. These are precisely the attributes that characterise banking operations. The argument that whatever work that can be done manually should continue to be done manually, can lead to the most absurd situations in almost all walks of life.

17. The Second RBI Report on Computerisation, laid much stress on branch level computerisation. It recommended that in the case of all large branches above a daily voucher load of 750, all items of work at the branch should be computerised. In the case of such branches, the recommendation was to move away from a scheme of computerisation, which is confined to operation of dedicated machines at the counters as such a scheme leads to a less than optimal use of the machines. A more efficient system of computerisation at the branch level would be one of real time transaction processing combined with a net working of all machines or terminals. Such on-line systems would help not only to update customer balances but also simultaneously generate all subsidiary books, general ledger accounts and MIS reports and thereby avoid duplication at back office. This would also enable a customer to go to any counter convenient to him and transact business.

18. Another important step in the successful implementation of computer and communication technologies is: connectivity. Branches which are

fully computerised must be connected within a centre. This intra-city connectivity would provide flexibility to the customers to visit any branch of the bank rather than being forced to restrict operations only to the branch where the account is maintained. This will have a demonstrable impact in improving the customer service. In a further stage the banks should move on to establish connectivity between their fully computerised branches on a inter-city basis. All of this of course, depend the quality of the communication network. With the recent agreement with the unions banking industry is entering a phase of rapid computerisation.

19. It is however necessary to reassure everyone that the envisaged computerisation programme will not result in any reduction in labour employed. Some reallocation of work, however, will become necessary. In fact, much of the drudgery involved in the routine type of work will be taken away in this process. This has indeed been the experience wherever computerisation has been introduced. The rapid expansion which lies ahead of the banking industry, which computerisation will itself help to bring about, will provide increased employment opportunities.

20. The key to India's growth lies in improving productivity and efficiency. This has to permeate all walks of our life. Contrary to the general impression, the natural resources of our country are not large. In fact, from the point of view of long range sustainability the need for greater efficiency in the management of natural resources of land, water, minerals, etc. has become urgent. Undoubtedly, improving productivity is the function of many factors. The policy environment has to be correct; the organisational structure has to be appropriate and the attitude to work and work technology right. Technology in general and within it information technology in particular is changing at a rapid rate. The country must keep pace with it, if we are to remain internationally competitive. I do hope that the Computer Society of India will play its role in keeping the computer industry in India technologically efficient and forward looking.