CHAPTER II
EXPLAINING PITRODA'S MODEL
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Since 1947, India's policy makers and those of the other South Asian countries have viewed development problems on the basis of narrow bureaucratic group drives. Informatics has become increasingly important to growth and peaceful development, but on account of ideological bottlenecks, it has not much commensurate contribution to policy formulation. It was only during Rajiv Gandhi's Prime Ministership in India that Sam Pitroda, a telecommunication expert of international standing was able to signal successively a serious commitment to reform in the area of information and communication technology and to incorporate it into an alternative theory of technical change. Pitroda was successful in analysing the range of means whereby India could develop a logical sequence for policies which could overcome "the complex bureaucracy-dictated, politicised, feudal situation" in which the country found itself. As an advisor to the Indian Prime Minister, Pitroda was himself involved in major national programmes on technology relating to rural drinking water, immunisation, adult literacy, oilseeds, telecom and dairy production development. Pitroda offered pointers for familiarising the Indian decision-making elite with the central importance of informatics for galvanising the processes of interactive learning in increasingly interdependent national, regional and world
political economy. Pitroda suggested that institutional and technological change could be meaningful only if fundamental assumptions about "information" influenced policy assignments both at the micro and macro levels:

1. Information has both a practical and theoretical relevance to not only technological opportunities and competitiveness but also to the role of institutions and national, regional and global systems of innovation. As Pitroda suggests: "Information systems have two distinct elements: hardware, such as computers to compute, memories to store, printers for a hard copy, and telecom to transport; and software to give necessary thought, logic and instructions to act and perform the necessary programmes for various applications and tasks. Of these two elements, software is becoming critical, difficult and challenging and constitutes the larger portion of the costs. Software involves brainware and thinking process. As a result it is expensive and time consuming. Software products, no matter how complex and expensive, are always documented on paper or stored in magnetic media like floppies or hard discs. These software products can penetrate physical barriers and cross national boundaries via the normal post office, telephone lines or satellite based data links. Today multi-million dollar software products are being designed for export in
developing countries, because of inexpensive and available brain power. These were transmitted through satellite links connected to large computer systems and networks in the U.S. and other western countries.

Information technology has come as a force to move out cultures, customs, communities and advance human civilisation. In the process, it will find new applications, create new jobs and bring equality. It is generally believed that information technology is only for the rich and the affluent and is needed only in the modern work environment. However, information technology is equally useful in population control, health services, agriculture, water management, transport and other major infrastructures along with steel mills, business centres and travel agencies.

2. Optimal and stable information strategies and solutions can be achieved if the science - technology interface is properly achieved through organisational balance. To quote Pitroda: "Information technology is definitely heading towards cost effective solutions. With smaller size, high speeds, more flexibility and greater performance. However, unless information technology becomes persuasive, it will not have an impact on the way of living, on thought and on culture. In many parts of the world, information technology is still a laboratory curiosity. For others, it is still a
tool. Unless it is produced in large quantities, as an acceptable instrument of change at all levels, whether at schools, factories, industries, homes, public places, restaurants, cafeterias or hotels, technology will not be perceived. To be pervasive, information technology will have to provide proper connectivity, either through telephone lines or through special data networks. The key to connectivity will be adaptability, commonality and standards."

3. Pitroda emphasised the view that effective microeconomic policies targeting productivity and efficiency required substantial information and even more importantly the evaluation of costs and benefits required an enhanced data and research capacity. "The significant part of the information revolution of today and tomorrow has a lot to do with the merger of communications and computer technologies", Pitroda affirmed.

4. Informatics is vital for creating a problem-solving environment without which deep rooted economic, social and educational problems cannot be solved and the stage cannot be set for real political and economic cooperation in any region. To quote Pitroda: "With the merger of communication and computers, global networks have become a powerful tool for economic, political and social change by offering more
choices to network people and information to everyone throughout the world. These networks are, used to exchange ideas and information between individual business organisations and most important, to keep pace with others.

Earlier we thought that speech communication sufficed for the promotion of understanding. Now it is well accepted that data communication is equally essential for the promotion of better trade and business (for information on inventory, market demands, financial needs, product perspectives, cost and other parameters). These modern networks provide a higher degree of communication between various users and thus provide a higher degree of understanding and appreciation of one another's requirements.

5. Pitroda rejected the view that information would inevitably lead to concentration and centralisation of power. He did not endorse this sort of fatalism and affirmed: "We believe that the phase where information centralised could be used as a source of power, is over. No amount of effort will now keep information isolated and concentrated in the hands of a few".

6. In India and other developing countries have to develop an appropriate dynamic response to the global environment, according to the Pitroda model, the urgent requirement is to
use the informatics to develop flexibility to reexamine critically the past techno-economic policies and devise new policies which will stand the test of a broad range of future developments in information and communication.

7. The underlying needs and interests of societies require enhancement of the service sector and it is here that informatics plays a constructive role in the advancement of creative approaches to the management and resolution of problems. "As the world moves away from capital intensive industrial base to knowledge intensive information base, the role of the service sector will increase substantially".

8. Although Pitroda does not provide a specific model of conflict management and peace keeping, he suggests an "alternative synthesis" for India and the SAARC which makes him a pioneer in the "knowledge and information society" of the sub-continent where perceptions and images must change by overcoming cognitive constriction.

Pitroda acknowledged that the concerns of India's neighbours in the sub-continent were also of immediate importance to New Delhi. Unlike the bureaucrats he perceived the South Asian conflicts as a part of wider issues that go beyond the borders of India and require that SAARC should commit itself to "gain economic advantage from information technology, bring openness into political and social norms
through the combination of accountability and democratic values with self motivated, self managed, decentralised networks. For South Asian leaders, Pitroda's prescription is quite specific: "The world leaders now know that with modern electronics warfare the expensive warheads no one can win wars. In Vietnam it was proved that no amount of technology and modern machine guns can assure victory. Modern wars are expensive and inclusive. They go on for a long time and ruin the local economy and prospects for prosperity. Enough has has been learnt in the past forty years that war based economy is prohibitively expensive and does not sustain national development and growth for long".

One striking fact to emerge from our examination of the arguments put forward by Pitroda was that they were recognised as sources of innovation, growth and peace-building by most of respondents from all the SAARC countries. Of crucial importance in this respect was political opinion in India cutting across the government-opposition divide. With a few insignificant exceptions Pitroda succeeded in overturning traditional dogmatic beliefs. The skepticism for the claims of his model was chiefly from bureaucrats who did not accept a new work culture.