PREFACE

Integrated Guided Missile Development Programme has been a success story introducing world class missiles in the Armed Forces within a short span of time. It is a major success of a large R&D programme of more than Rs. 3000 crores. Technology Management and Transfer during the programme have been a unique achievement with concurrent engineering in spite of American sanctions and MTCR (Missile Technology Control Regime). Technological innovations are often the consequences of articulated demands of the market and are sensitive to many factors, some technological, many economic and even social. The assessing and choosing of technologies is an important factor in linking it with the production of goods and services. Another major component is the way technology is transferred from laboratories and assimilated in industries. The latter embodies in it the diffusion of technology and the potential to teach the practitioner to be innovative. This process of acquiring skills, the so-called 'learning by doing' has turned out to be a vital factor in absorbing innovations for manufacture.

Many developed countries have become adept in transferring technology among their institutions. There are also examples where technology transfer has become a problem with poor diffusion of skill and poorer assimilation. One transfer does not blossom into many innovations, but end as a solitary product or service, vulnerable to competition, and easily overtaken by newer innovations. Why is this so, even when the transfer between laboratories and industries is within the country? India has the third largest scientific manpower and four excellent Govt. scientific organisations viz. CSIR, DRDO, DAE, and ISRO and many outstanding schools in science
and universities but the indigenous high technology products in civil sector as well as Defence sectors are limited. Seventy percent of weapon systems held by Indian Armed Forces are of foreign origin. Under the leadership of Bharat Ratna Dr. APJ Abdul Kalam major state-of-the-art weapon systems i.e. AGNI, TRISHUL, NAG, AKASH and Prithvi have been developed.

This study is a humble but organised effort to arrive at organisational structure, methods, management guidelines, human resources management, motivation and methods for technology management and transfer of technology in Indian environment. These are based on evaluation of the techniques used by Bharat Ratna Dr. APJ Abdul Kalam in DRDO, in order to achieve India's goals to become a Developed Country by 2020.