



Nuances of Transfer of Technology in Defense Domain & its Mathematical Modelling

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Summary of the book

The Book “Nuances of Transfer of Technology in Defense Domain & its Mathematical Modelling” strongly argue the case for Technology Transfer as a tool for fulfilling our strategic objective, a stronger India that is instrumental in aiding its friends & deterring its adversaries and to remain all-powerful in the Indo-Pacific while propelling India to become the world's leading exporter of defence platform and net security provider. The essence of the book is dissemination of information on the Transfer of technology with an aim to increase awareness in readers and interested parties on how TOT can propel the idea for “Make In India” and “Atmanirbhar Bharat” by leveraging already available technology in the global market for aiding defense manufacturing in India & self-reliance in Defense Domain, in line with vision of present leadership of the country as today we are at the cusp of becoming net technology exporter from traditionally a technology importer.

This book provides practical guidance for navigating techno-commercial challenges in innovation, entrepreneurship, ToT, skill mapping, and start-ups within the Defence and Manufacturing Industry. Readers will benefit from detailed strategies on academic-to-industry and industry-to-industry technology transfers, statistical supply chain modeling for defense forces, OEM selection, tendering processes, and the mathematical frameworks supporting these activities.

The Book vividly outlines the need for India to embrace technology transfer and how it can help achieve parity with nations that are averse to India's growth. It also discusses the hazards and potential risks involved, navigating international restrictions, and balancing the concerns of international fora. Furthermore, the Book explores into how technology transfer is a geopolitical tool for achieving strategic goals in the global sphere and the dynamics involved. It also touches upon the benefits of technology transfer, the economics involved, and how it aids in developing technology in the civil market and vice versa.

The Book subsequently divulges into the field of qualitative approach used in mapping Tech Transfer for Make in India and how Tech Transfer can aid in propelling the national dream of Make in India and helping the nation grow beyond its present capability and capacity in the Defense market. The Book also introduces the learned reader to the concept of “Defence Corridor” a state-of-the-art endeavor in Uttar Pradesh and Tamil Nadu by Hon. Prime Minister of India, Shri. Narendra Modi, for creating an ecosystem for the defence industry, nurtured by the defence industry and is of Special concern for the defence manufacturers, to handhold them in developing India into a defence manufacturing hub.

Further, the Book also explains in detail how the Planning and Management of the Transfer of Technology happens in Indian Defence PSUs, and the same can be used in private industry, which in India has now geared up to take on projects of such scale and of national importance. The authors have developed a mathematical model for technology absorption and tech transfer while mapping the value supply chain and extended the use of ToT in MRO projects.

The Book closes on the future of India transiting from being a Defence equipment Importer to Defense equipment Exporter, while maintaining its moral and ethical principles in the field of Human Rights, equal representation and in sync with PM’s clear conviction on “This is not the era of War”.

The authors, Dr Lakshman Singh, Chief Manager (Projects), HAL Korwa, Amethi, UP & Mr. Gaurav Yadav, Chief Manager (Purchase), HAL AOD Nasik, Maharashtra based on diverse experience in the field of Transfer of technology, & have tried to bring out the subtleness of the tech transfer that happens across the boundaries among the friendly nations. Lakshman, on the one hand, brings out the technical part and the techno-commercial aspect; Gaurav, on the other hand, has brought out the thought, exercise & hard work of not only the engineers involved but also the Defence Services, Bureaucrats, Diplomats and Politicians and other agencies who put their best minds to work to get the finest and much-needed technology for safeguarding not only the territorial integrity but also the strategic interests of the country.

About the Authors

Dr. Lakshman Singh, is a technocrat, economist, and project manager with over 20+ years of extensive experience leading and managing avionics projects at Hindustan Aeronautics Limited, a DPSU of the Ministry of Defence (Government of India). Recognized as a technical leader by various agencies in the USA, Australia, Spain and India, he has received accolades for his exceptional technical and program leadership in the aerospace sector. His academic prowess spans Science, Engineering, Management, Economics, and Statistics at both undergraduate and postgraduate levels. Dr. Singh has achieved significant milestones in multidisciplinary research and demonstrated leadership in a wide range of Transfer of Technology initiatives, contributing significantly to the Make in India campaign. This comprehensive expertise is invaluable to the entire technologist community. He is also Empaneled as an Independent Director with the Ministry of Corporate Affairs, Government of India. He has published numerous research papers in both National and International Journals on operation management, project planning - scheduling, R&D, and technology management in different aspects of Avionics TOT projects of Indian DPSUs. He is presently leading research on electro-optronics and is one of the few experts in the country who have expertise in designing such systems.

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Mr. Gaurav Yadav is a Mechanical Engineer by academics, a Technocrat by Profession, and has served as an Indian Diplomat at the Embassy of India, Moscow, Russia during Dec' 2015 to Dec' 2018. He has 18 years of professional experience in Helicopter Research & Design, Aerospace Supply Chain Management & Contract Management, International Relations and Diplomacy combined with his deep Public procurement experience. He is also empaneled as an Independent Director with the Ministry of Corporate Affairs, Government of India. His knowledge and expertise in International Contract Management, Negotiations, contract drafting and techno-commercial negotiations enabled the signing of a Long-Term Support Contract between the government agencies for after-sales support of all Russian Origin Fixed-wing Military Aircraft, Aero Engines & Supply of Aircraft Spares for Indian Defence forces. Gaurav has Published research papers on Computer-Aided Design and Computer Aided Machining and is also an accomplished writer. His first personal work, a Novel "Leave Me Not - Maverick", based on an Indian Airforce pilot's Life and his experience while serving the nation, came out in 2013 and was reprinted in 2014; apart from that, he has written articles on concurrent issues varying from geopolitics, security, Socio-economic issues & religion to name a few. Gaurav is currently working as Chief Manager (Purchase) with Aircraft Overhaul Division, Hindustan Aeronautics Limited, Ojhar, Nasik, Maharashtra.

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