Foreword

There is no longer any doubt that the peaceful uses of space infrastructure provides a prevailing tool for expanding the well-being of humanity and the Earth's environment. Space architecture and applications are fundamental for providing important services to people on earth. Some of these services are intertwined into our daily lives such as the use weather forecasts, satellite TV and radio. More recently, we are seeing more innovative personal communications devices with integrated GPS technology. Space technology is currently being incorporated into Health care, learning, transport systems, disaster relief, and search-and-rescue operations.

Using space infrastructures provide opportunities in a wide range of public missions in a cost-effective way. In particular, space infrastructure can generate solutions for long-term societal needs such as climate monitoring, resource management, disaster relief, and digital inclusion. Unfortunately, these opportunities are not being exploited for a variety of reasons, which range include lack of information, technical problems, and the existence of bureaucratic rules that prevent the effective use of the infrastructures.

To realize the full potential of space infrastructure, there are some critical issues that need to be addressed: space infrastructure must be continuously improved and upgraded; there must be increased efforts to integrate space applications with terrestrial systems, ensuring infrastructure sustainability, address the digital divide, and mandating ethical use of space resources. In order to achieve these critical issues, governments and decision makers will need to consider the challenges from a technological, legal, economic, and regulatory dimension.

This book provides an insight into work that is being done around the globe to address these critical issues. It also provide, in only one document, a comprehensive review of how space technology can influence the future of people on earth across multiple domains such as health, education, disaster management, and communication. The book describes real world problems using case studies and opens at the same time a perspective towards the future by discussing the utilization of space technology at global, national and regional levels for resolving specific problems.