

Quantum Computing has the potential to bring a paradigm shift in defence technology by creating a significant impact on future military capabilities. Undoubtedly, defence and national security are among the first domains to adopt the emerging quantum technologies such as quantum radars, quantum network sensors for detection of stealth weaponry, and submarine navigation.

The presented poster, with particular focus on quantum satellites, provides an overview of the current state of research, future advances, and challenges that can be encountered in quantum communication technology. It highlights the use of an entanglement-based Quantum Key Distribution (QKD) to provide methods for long-range satellite-to-ground and inter-satellite secure quantum communication for the military advantage. This technology of QKD can also be leveraged to build a denser network of quantum satellites that could provide a means for secure and wireless communication, therefore, helping with the establishment of a space-based quantum internet. Further advancements with such QKD technology have far-reaching effects for military capabilities, missile defence system, intelligent services, and law-enforcement agencies.

The poster analyzes these quantum technologies that are specialized to provide enhanced functionality to optimistically impact warfare systems concerned with communication, sensing, and even artificial intelligence.