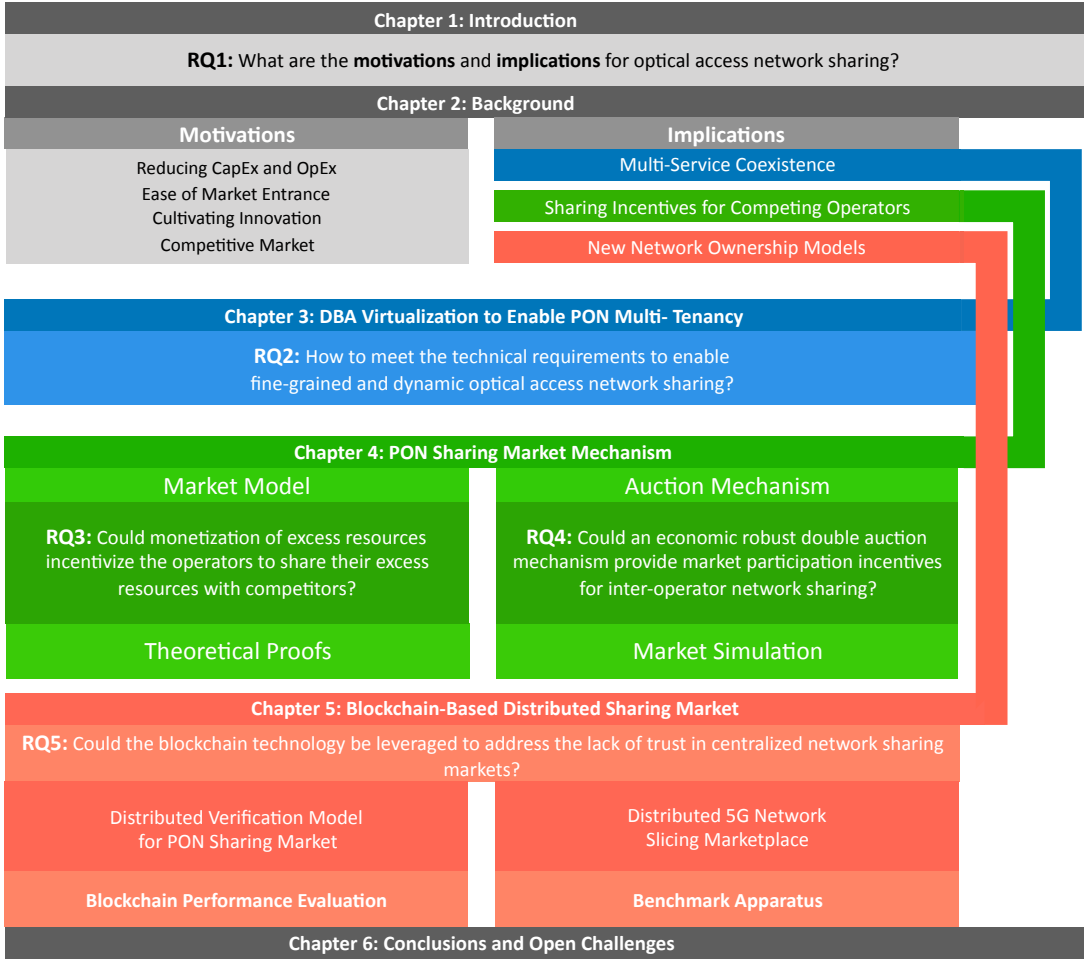
Chapter 1: Introduction
RQ1: What are the motivations and implications for optical access network sharing?
Chapter 2: Background
Motivations
Reducing CapEx and OpEx
Ease of Market Entrance
Cultivating Innovation
Competitive Market
Implications
Multi-Service Coexistence
Sharing Incentives for Competing Operators
New Network Ownership Models
Chapter 3: DBA Virtualization to Enable PON Multi- Tenancy
RQ2: How to meet the technical requirements to enable fine-grained and dynamic optical access network sharing?
Chapter 4: PON Sharing Market Mechanism
Market Model
RQ3: Could monetization of excess resources incentivize the operators to share their excess resources with competitors?
Theoretical Proofs
Auction Mechanism
RQ4: Could an economic robust double auction mechanism provide market participation incentives for inter-operator network sharing?
Market Simulation
Chapter 5: Blockchain-Based Distributed Sharing Market
RQ5: Could the blockchain technology be leveraged to address the lack of trust in centralized network sharing markets?
Distributed Verification Model for PON Sharing Market
Blockchain Performance Evaluation
Distributed 5G Network Slicing Marketplace
Benchmark Apparatus
Chapter 6: Conclusions and Open Challenges