# Chapter 11
# The Arbitrability of Smart Contract Disputes Amid Legal Uncertainties in Digital Arbitration

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## ABSTRACT

*Smart contracts as self-executing agreements coded to blockchain networks introduced major disputes to the existing dispute resolution field. It face problems with traditional arbitration methods because of their decentralized design combined with non-traditional negotiation standards and built-in arbitration clauses in programming code. The research investigates whether programmed arbitration clauses verify valid arbitration agreements along with court treatment of their enforceability across different legal systems. The research investigates the existing jurisdictional obstacles and public policy dilemmas and regulatory void that affect smart contract dispute resolution mechanisms, especially for digital assets and AI dispute settlement procedures. This analysis presents blockchain technology findings combined with arbitration law analysis and regulatory situations whereas it strengthens the general discussion about law and governance in digital transactions.*

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## INTRODUCTION

The quick expansion of blockchain technology has brought about revolutionary changes that affect the entire global legal market as well as business transactions. The domain of disruptive innovations brings smart contracts foremost as computer protocols that automatically implement pre-defined terms through self-executing codes while eliminating the requirement for centralized oversight and intermediaries. Smart contracts reduce transaction costs and enhance visibility then enable automatic performance execution to unlock great potential within the finance industry alongside logistics sectors and real estate markets and digital governance operations. Such unique architectural design of smart contracts causes substantial ambiguity in legal frameworks because parties still need traditional private adjudication to resolve disputes.

New difficulties emerge for arbitration during current circumstances. The transactional relationships involved in smart contract disputes primarily consist of anonymous users operating through decentralized systems that execute all business processes solely by coding languages. The distinctive features of smart contracts conflict with established procedures for forming agreements and receiving consent between parties and apply legal systems in ways that generate uncertainties regarding arbitration rights together with the conditions for arbitration eligibility. The concept of arbitrability exists as a dual framework that evaluates two elements: the participatory capacity and consent of parties concerned about arbitrability (subjective) alongside the assessment of dispute eligibility for arbitration under established laws and public policy guidelines (objective). Smart contracts remove the traditional distinctions between the two features. The execution of code through silence raises questions about how consent can be proven in a valid manner. The arbitrability of disputes arising from automated protocols becomes complex when these protocols involve regulated sectors that national law prohibits from arbitration. Since blockchain code represents the sole existence of arbitration agreements what interpretation methods do judicial forums use to analyze these automated systems that fall outside the scope of the 1958 New York Convention or the UNCITRAL Model Law's original design?

The paper analyzes these urgent matters by merging multiple fields of study while providing a thorough study of arbitration in smart contract disputes. The text contains four central parts. Chapter 1 gives readers a discussion on smart contracts and their relationship to arbitration principles at the conceptual and technological levels. Traditional arbitration doctrine faces challenges from three elements that stem from decentralization and automation as well as code-based execution logic. The second chapter of this work performs an organized examination of both arbitrability dimensions that operate in smart contract environments. Smart contracts pose problems to consent delivery and formalities and party identification due to