

Arbitration of cryptoasset and smart contract disputes: arbitration unchained?

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This article considers the use of arbitration for disputes relating to cryptoassets and smart contracts. Arbitration has many features that make it well suited in this context and it is fast becoming the dispute resolution option of choice in the crypto sector. The inherent flexibility of arbitration and party autonomy can help to address many of the unique technical challenges arising from cryptoassets. However, technology, unique procedural options and public policy issues also give rise to specific concerns when arbitration is used.

Arbitration and arbitration agreements

Problems of jurisdiction and forum selection

Applying existing conflicts of law rules to disputes relating to cryptoassets and smart contracts is potentially difficult. They are intangible assets that exist as records on decentralised networks with touchpoints in multiple jurisdictions. The market in many cryptoassets is a global one and counterparties to transactions may be unknown or untraceable to a particular jurisdiction. The large public blockchains (such as Bitcoin and Ethereum) are open to all, with no terms or conditions. Where a dispute arises, this market structure (or lack thereof), can create practical problems for claimants in understanding where they can bring claims, and for defendants that find themselves being sued in jurisdictions with which they have no real connection or which they never anticipated being in. Such unpredictability may result in substantial satellite litigation on jurisdictional issues. Where there is a contractual nexus between parties, choice of law and jurisdiction agreements (and arbitration agreements) can reduce that uncertainty.

To date, most conflicts of law issues dealt with by the courts in this context have concerned cryptoassets, such as cryptocurrencies and non-fungible tokens (NFTs), rather than smart contracts. In those cases, where there is no agreement as to governing law or jurisdiction, the English courts have in some respects led the way by considering the issue as one requiring the identification of the *lex situs* of an intangible asset and then deciding that it is the place of the owner's residence (*Tulip Trading Ltd v Bitcoin Association for BSV [2022] EWHC 667 (Ch)* (*Tulip Trading v Bitcoin*), discussed in *Article, Cryptoassets: the scope of blockchain developers' duties*). However, that approach is not without criticism and it is unclear how courts in other jurisdictions will apply their own conflicts rules on a consistent basis. The risk of divergence between jurisdictions has prompted various harmonisation initiatives. For example, in October 2022, the Law Commission of England and Wales (Law Commission) launched a project on digital assets (see *Law Commission: Digital assets: which law, which court?*). The International Institute for the Unification of Private Law (UNIDROIT) also launched a consultation (that closed in February 2023) on its Draft Principles and Commentary on Digital Assets and Private Law, which addressed conflicts of laws in one of its modules (see *UNIDROIT: Digital Assets and Private Law – Public Consultation*).

Benefits of arbitration

As well as greater certainty as to the jurisdiction and forum for any disputes, arbitration has several features well suited to the crypto sector. First, it provides parties with a flexible procedure which can be tailored (at an individual or institutional level)

to particular types of disputes, allowing specialist lawyers (or even non-lawyers) to act as arbiters of very technical disputes. It is also generally, although not always, a confidential process. Perhaps most importantly, it provides parties with a neutral forum and awards that, under the [New York Convention](#), are typically more widely enforceable than national court judgments. However, the use of arbitration agreements creates particular challenges when it comes to cryptoassets or smart contracts where a traditional "wet ink" contract is unlikely to exist between parties.

Smart contracts

The Law Commission adopted the term "smart legal contract" in its 2021 paper (see [Law Commission: Smart legal contracts: Advice to Government](#)), which it defined as a binding contract in which some or all of the contractual obligations are defined in, or performed automatically by, a computer program. The Law Commission identified three categories of smart legal contract:

- A natural language contract with automatic performance by code.
- A hybrid contract, which covered a broad spectrum of situations, but in which some contractual obligations are defined in natural language and others are defined in the code of a computer program.
- A contract recorded solely in code.

In the first two categories, the inclusion of an arbitration agreement is straightforward. However, it can still be ineffective if the creator of a smart contract does not ensure that anyone using it is properly bound by the terms of the wrapper agreement (see [Rensel v Centra Tech, Inc., 2018 WL 4410110 \(S.D. Fla. June 14, 2018\)](#) (*Rensel v Centra Tech*), discussed in [Validity of arbitration agreement in cryptoasset user agreements](#)).

An arbitration agreement in the coded part of a smart legal contract gives rise to more complex issues. A natural language arbitration agreement could be embedded into the code of the smart legal contract or included in notes to the code. Whether such an agreement is a binding contract under English law is unclear. The Law Commission was doubtful that choice of law agreements embedded in computer code would be binding ([paragraph 7.74, Smart legal contracts: Advice to Government](#)), but did not address arbitration agreements. It is also unclear whether this would amount to a written arbitration agreement for the purposes of article II(1) of the New York Convention.

Another approach is to include a "smart" arbitration agreement, under which the code triggers a reference to arbitration when certain conditions constituting a dispute are satisfied or, more likely, when a reference is requested by one of the parties. This may be coupled with a function that "pauses" performance of the contract to protect the status quo. The smart contract could generate a request for arbitration under an existing set of institutional rules. The arbitration agreement could also be programmed to refer disputes to new arbitration institutions offering to manage arbitration on blockchains and aimed specifically at blockchain disputes (see ["On chain" arbitration](#)). Similarly, the code could permit the arbitrator (whether "on chain" or "off chain") to enforce an award directly on the distributed ledger by, for example, empowering them to reverse or complete transactions, or even to modify the smart contract itself (see [Enforcement of arbitral awards](#)).

Cryptoassets

In the case of large public blockchains, there is no contractual relationship between all participants. At present, major disputes as to how a blockchain should operate, including very occasionally whether the effects of hacks should be reversed, are often resolved by "forks" of those blockchains (such as the Ethereum Classic fork in 2016 after the decentralised autonomous organisations (DAO) had been hacked). A fork is the name given to the process of copying of an entire blockchain and then applying new rules or protocol to the copy. The blockchains then diverge as miners, users and the broad market gravitate to one or the other, or as both start being used in different ways. Given the very disruptive effect of forks, they are not suitable for resolving disputes between individual participants or a vindication of legal rights via an adjudicatory process.

In theory, overarching agreements could be put in place between all participants in a public blockchain but attempting to create a single global agreement that caters for all disputes between all participants (and is binding in all jurisdictions) would be legally challenging. There may also be a more fundamental challenge, namely that the communities that participate in the governance of those blockchains may consider the approach as inconsistent with the key tenets of decentralised governance and outside of the nation state system. Nevertheless, it has been attempted on some blockchains (see "*On chain*" arbitration). More directly, the draft UNIDROIT principles (see *Problems of jurisdiction and forum selection*) propose that digital assets could be subject to a governing law specific in the digital asset itself, as opposed to the system of platform, albeit little detail is given as to how this could be given practical effect.

In practice, the arbitration of disputes relating to cryptoassets requires parties to have entered into some form of separate bilateral written agreement to arbitrate. There is currently widespread use of arbitration in the crypto sector and common examples of contracts containing arbitration agreements include:

- Bilateral agreements requiring the transfer of cryptoassets, for example token sale agreements or Simple Agreement for Future Tokens (SAFTs).
- Online service provider user agreements, for example, crypto exchanges and marketplaces.
- The terms of an Initial Coin Offering, which are usually hosted on a website of the issuer or related entity.

Validity of arbitration agreement in cryptoasset user agreements

The validity of arbitration agreements in user agreements has been considered in a range of contexts, not necessarily arising from the technology itself but from the global and entirely-online nature of most crypto businesses:

- **Browsetrap agreements.** A common argument from claimants seeking to litigate claims (particularly class actions) is that they did not have proper notice of the terms on a website or that they were not actively required to confirm such terms (a "*browsetrap*" agreement). These are very fact sensitive claims and recent decisions on applications to stay proceedings or compel arbitration in US Federal Courts have gone both ways. For example, the District Court for the Southern District of New York upheld an arbitration agreement in *Ventoso v Shihara*, 2019 WL 9045083 (S.D.N.Y. Jun. 26, 2019), whereas the District Court for the Northern District of California refused to uphold a choice of court agreement in *In re Tezos Securities Litigation*, 2018 WL 4293341 (N.D. Cal. Aug. 7, 2018).
- **Competing and incompatible agreements.** A common issue with online user agreements is that they are frequently updated, overlap or disappear entirely from the internet. Establishing whether disputes are subject to arbitration agreements at all, and whether the *kompetenz-kompetenz* principle requires a court to allow an arbitrator to decide, has arisen in a number of US cases. For example, where the defendants operated two platforms, the terms of only one of which required disputes to be arbitrated, the District Court for the Northern District of California said that whether the claims fell within the scope of the arbitration agreement was a jurisdictional issue and for the arbitrator to decide (*Johnson v Maker Ecosystem Growth Holdings, Inc. (Case No. 20-cv-02569-MMC (N.D. Cal. Sep. 25, 2020))*). Where a new token could be purchased via a website (containing terms including an arbitration agreement) or by sending Ether directly to the DAO smart contract, and the claimant did the latter, the District Court for the Southern District of Florida held that the disputes did not fall within the arbitration agreement (*Rensel v. Centra Tech*). The existence of competing versions of online user agreements can also have substantive effects. In *Re Gatecoin Limited (In Liquidation) [2023] HKCFI 914*, the Hong Kong Court of First Instance held that whether an exchange held cryptoassets on trust for users depended on the version of the exchange's terms.
- **Unconscionable agreements.** Claimants in the US have sought to challenge arbitration agreements on the basis that they are procedurally or substantively "unconscionable", where that ground exists under relevant state law. Cases with

similar facts and arbitration agreements have gone both ways (*Bielski v Coinbase, Inc.* 2022 WL 1062049 (N.D. Cal. Apr. 8, 2022); *Donovan v Coinbase Global, Inc.*, 2023 WL 2124776 (N.D. Cal. Jan. 6, 2023)). It is likely only a matter of time before this issue comes before the US Supreme Court, which recently decided one technical point arising out of *Bielski* concerning stays of proceedings pending appeals of an issue of arbitrability).

- **Non-arbitrable disputes.** Arbitrability (that is, whether the substance of a dispute is capable, as a matter of law, of being settled by arbitration (see *Practice note, Arbitrability in international arbitration*)) is a potential issue in some jurisdictions given the public policy issues and ban on cryptoassets. It is discussed below in the context of enforcement of awards (see *Enforcement of arbitral awards*).
- **Consumer protection.** In the US, consumer arbitration is widespread and supported by consistently pro-arbitration decisions of the US Supreme Court. Many other jurisdictions, including the UK and EU, adopt a more protective approach and have focused on other forms of consumer alternative dispute resolution (such as the EU's Online Dispute Resolution Platform). Under EU and UK law, arbitration agreements in consumer contracts are not banned but must be fair to be valid and there is a presumption that arbitration agreements are unfair. In England and Wales, the Arbitration Act 1996 (AA 1996; section 91), together with delegated legislation, deems an agreement unfair automatically (under the Consumer Protection Act 2015 (CRA 2015)) where a claim is less than £5,000. The English Court of Appeal has refused to stay proceedings initiated by a UK-based NFT collector against a marketplace in breach of a JAMS arbitration agreement, notwithstanding that arbitration was underway in New York, and ordered that the English court decide the validity of the arbitration agreement (see *Soleymani v Nifty Gateway LLC [2022] EWCA Civ 1297*, discussed in *Legal update, Court of Appeal overturns stay of English court proceedings in favour of arbitration in consumer law claim (English Court of Appeal)*). The court also held that the existence of an arbitration agreement in the user agreement of a crypto exchange did not deprive it of jurisdiction to hear claims against the exchange brought by an English consumer (see *Chechetkin v Payward Ltd and others [2022] EWHC 3057 (Ch)*, discussed in *Legal update, Arbitration award does not deprive the English court of jurisdiction over proceedings relating to the same subject matter (English Chancery Division)*). In subsequent, related proceedings, the English commercial court refused an application under section 101 of the AA 1996 to enforce the award made by a tribunal seated in California (which had rejected a challenge to its jurisdiction). In particular, the judge held that the arbitrator's refusal to apply or even consider English law (particularly the CRA 2015 and Financial Services and Markets Act 2000 (FSMA)) where one party to the contract was a UK-based consumer meant that enforcement of the award would be contrary to public policy and it should be refused under section 103(3) of the AA 1996. The court ruled that the fact that an agreement obliged parties to arbitrate their disputes did not make it unfair. However, while a reasonable UK consumer may have agreed to arbitration in the UK, subject to the AA 1996 under which there would have been a qualified right to appeal in the event of an error of law, they would not have agreed to arbitration in California, under the JAMS Rules and subject to the US Federal Arbitration Act (see *Payward Inc and Others v Chechetkin [2023] EWHC 1780 (Comm)*, discussed in *Legal update, Enforcement of international arbitration award relating to consumer contract refused on grounds of public policy (English Commercial Court)*).

Arbitration rules and procedures

Existing arbitration rules

Arbitration agreements used in the crypto sector typically provide for the use of existing institutional arbitration rules, as opposed to either rules designed specifically for the sector or bespoke rules devised by the parties. In the case of online user agreements, there appears to be a convergence towards the rules of US institutions that have been adapted specifically for consumer arbitration (for example, the rules of the American Arbitration Association (AAA) and JAMS), while companies based or operating in the Asia Pacific region have a preference for the Singapore International Arbitration Centre (SIAC) and

the Hong Kong International Arbitration Centre (HKIAC). Arbitrations under the AAA and JAMS rules in the US have been reported frequently, while one of the highest-profile arbitrations related to cryptoassets in recent years was launched by a group of Binance users under the HKIAC's rules to recover losses suffered during an outage of the platform.

Trends in relation to arbitral seats are harder to identify. While traditional major arbitration centres are used, there is also a significant use of lesser known and relatively obscure seats, including in jurisdictions without a particularly developed arbitration law. There is a spectrum of reasons for this, ranging from a desire to obtain some perceived "home" advantage to actively seeking to dissuade claims by selecting a difficult to access jurisdiction. Anecdotally, there does seem to be a preference for Seychelles as a seat, which is a jurisdiction used by many crypto businesses but rarely seen as a seat in international commercial arbitration (see *Checklist, International arbitration: A comparison of key arbitral seats*).

New arbitration rules

There have been some attempts to create dedicated sets of arbitration rules.

- **JAMS.** JAMS published a draft set of rules for disputes arising from smart contracts in 2018 (see *Draft JAMS Smart Contract Clause and Rules*) (JAMS Rules). The JAMS Rules are tailored in a number of ways, including that discovery is limited to the deposition of an expert witness on the meaning of the code and the arbitrator's review of evidence is limited to that deposition, the code, any wrapper contract and witness evidence. The JAMS Rules also make provision for how a smart contract written in code should be interpreted, giving the code primacy and that any "translation" of that code into natural language is to be considered by the arbitrator only if there is ambiguity or logic contradiction in the code. The whole process is extremely quick, with the arbitrator being required to issue an award within 30 days of their appointment.
- **Digital Dispute Resolution Rules (DDRR).** In 2021, the UK Jurisdiction Taskforce of LawtechUK published the DDRR for use in digital disputes. The DDRR are, in some ways, more ambitious than the JAMS Rules. Key features of the DDRR include:
 - a simple procedure with gaps that are intended to be filled by the English *Arbitration Act 1996* or by the parties, with a default rapid 30-day process and the Society for Computers and Law as an appointing authority;
 - anticipation of binding "on chain" arbitration and provision of an appeal process;
 - the parties can, by agreement, remain anonymous from one another; and
 - the arbitrator is empowered to modify digital assets directly (albeit that the parties still need to give the arbitrator the tools to do so).
- **EOSIO.** When the EOSIO blockchain launched in 2018, an arbitration process was included in its constitution, although the precise status of the constitution is itself a controversial issue. Under the envisaged process, disputes were to be resolved under the Rules of Dispute Resolution of the EOS Core Arbitration Forum (ECAAF). Any arbitral awards (or interim orders) would be enforced "on chain" by the blockchain's validators (see *"On chain" enforcement*). The experiment was short lived, but from the little information in the public domain, the process had the hallmarks of a mature and sophisticated system of dispute resolution. It produced reasoned awards and emergency orders to freeze accounts in suspected on-chain frauds. Arbitrators seem to have been volunteers drawn from the crypto community but it is unclear if they were legally qualified.

"On chain" arbitration

The term "on chain" arbitration covers a multitude of procedures and concepts. These range from simply enhancing current "off chain" procedures (and rules) by providing for communication and storage of case documents on blockchains, at one end of the spectrum, to radical departures from traditional forms of dispute resolution, at the other. It can take a number of forms and may overlap to a certain extent with "on chain" enforcement (see "[On chain enforcement](#)"). Examples of "on chain" procedures include:

- **Oracles.** While not strictly arbitration, in a smart contract, it is possible to define at the outset a narrow set of potential disputes that could be resolved by reference to data from an external data source (an "oracle"). For example, a complaint that goods were not delivered could be resolved by checking information in the database of a courier company.
- **Multi-signature transaction.** A widespread form of on chain adjudication (although again not purporting to be arbitration), this is typically used when cryptoassets are being used as payment and provides for the binary question of whether transfer should take place. In its most basic form, the cryptoassets are stored in a wallet accessible by three keys, with two required to complete a transfer. Where there is no dispute, the two parties can make the transfer using their keys but, if a dispute arises, a neutral third party will decide whether the transfer should take place using their key.
- **"On chain" arbitration systems and apps.** Some attempts have been made to transplant the traditional arbitral process (which still relies to a significant degree on email correspondence and, to a lesser degree, physical correspondence, although some institutions are gradually moving to online platforms; for example, see [Legal updates, ICC launches online case management platform](#) and [ICC announces 2024 launch of enhanced case management platform](#)) to a blockchain and to integrate it with other applications or smart contracts. Examples from the market include:
 - **Datarella's Codelegit project** created open source code incorporating its own "Blockchain Arbitration Rules" for use in smart contracts;
 - **Kleros** operates on the Ethereum blockchain and is based on the use of volunteer "juries" incentivised by the fee structure to be in a majority. It has also sought to standardise code (via ERC token standards) for arbitration agreements in decentralised applications, referred to as dApps. Kleros was reportedly used in a hybrid arbitration process (in which the arbitrator was required to refer the issue to Kleros but then incorporate the decision in his own award) that generated an award that was enforced in the Mexican courts; and
 - **Aragon** is a software used to create smart contract-based DAOs on the Ethereum blockchain and claims to support the Aragon Network Jurisdiction, an arbitration system for handling claims between DAOs and their members.

It should be noted that there is little information available on these and it is unclear to what extent they are still active or maintained.

- **Blockchains and distributed ledgers integrate arbitration "modules" or "layers".** Some platforms allow specifically for the integration into a blockchain or distributed ledger of bespoke "modules" or "layers" providing for arbitration. Examples from the market include:
 - **Hedera Hashgraph**, a distributed ledger that permits arbitration to be incorporated into smart contracts. Arbitrators are permitted to amend the code to correct bugs or even to reverse a transaction;
 - **Jur**, a blockchain that promotes dispute resolution smart contracts "modules", which include arbitration; and

- **COTI**, a blockchain aimed at payment solutions, which includes an arbitration system based on "juries" incentivised by fees paid in the native token.

Enforcement of arbitral awards

Issues enforcing arbitral awards

For all the advances and publicity in recent years, the crypto sector remains in its infancy, meaning that issues arising from attempts to enforce arbitral awards concerning cryptoassets are only just starting to emerge. However, there are a small number of reports of failed attempts to enforce awards.

Jurisdictions maintaining restrictive regulations on the use and transfer of cryptoassets may on public policy grounds refuse to recognise arbitral awards relating to crypto disputes, or awards denominated in cryptocurrencies or requiring the transfer of cryptoassets. For example, in 2018, the Shenzhen Intermediate People's Court set aside an arbitral award (issued in China) that ordered the respondent to pay damages in respect of a failure to transfer a certain sum of Bitcoin. The damages were in the Chinese Yuan equivalent value but the award was set aside on the public policy ground that its enforcement would otherwise facilitate circulation of cryptocurrency and its exchange with fiat currency contrary to current Chinese law (*Gao Zheyu v Shenzhen Yunsilu Innovation Development Fund Enterprise (L.P.) and Li Bin*, (2018) Yue 03 Min Te No. 719).

However, there have also been enforcement difficulties in jurisdictions that do not ban cryptocurrencies. In 2022, a Greek court refused on public policy grounds to enforce an arbitral award that ordered the repayment of a Bitcoin loan to the claimant, citing concerns that cryptocurrencies are not recognised as a currency, therefore posing a risk to the parties that use them and potentially facilitating tax evasion and fraud, among other social ills (*Court of Appeal of Western Central Greece*, No. 88/2021 (unreported)). In 2023, the English commercial court refused on public policy grounds to enforce an arbitral award rendered under the dispute resolution provision of a set of terms and conditions for a cryptocurrency trading platform. That provision provided for disputes to be resolved through California-seated JAMS arbitration. When a dispute arose, the sole arbitrator refused to apply, or even consider, English law (particularly the CRA 2015 and FSMA) in circumstances where one party to the contract was a UK-based consumer who was pursuing proceedings before the English courts that the cryptocurrency platform was in breach of FSMA. The court held that, in those circumstances, enforcing the award would be contrary to public policy under section 103(3) of the AA 1996 (see *Payward Inc and Others v Chechetkin* [2023] EWHC 1780 (Comm), discussed in [Validity of arbitration agreement in cryptoasset user agreements](#) above).

The use of little known and online-only arbitration services can also result in enforcement issues that have little to do with the novel technical or legal features of cryptoassets. For example, in 2019, the Amsterdam Court of Appeal refused to enforce an award for repayment of Bitcoin loans issued by a US company called "net-Arb", an online dispute resolution service. The arbitration agreement contained some particularly onerous terms, including that the dispute was referred to arbitration automatically after a default and the defendant had to give notice within seven days if it wanted to appear in the arbitration. The defendant had received no notice of the arbitration and so challenged enforcement in the Netherlands and the court refused to uphold the awards on public policy grounds (*Amsterdam Court of Appeal*, 29 January 2019 (ECLI:NL:GHAMS:2019:192)).

"On chain" enforcement

A number of the arbitration rules referred to above envisage "on chain" enforcement. This is an important issue for the crypto sector generally because it may address the fundamental issue of how an "immutable" blockchain or ledger can be rectified, or transactions reversed, in disputes as to ownership, fraud, mistake or breaches of contract. At present, "on chain" enforcement

options range from empowering the arbitrator to operate or modify a smart contract directly, to an enforcement mechanism independent of the powers of national courts. This may promote efficacy and efficiency (as well as giving effective redress where there would otherwise be none) but it also lends very significant power to arbitrators outside of the current oversight frameworks of national arbitration legislation.

One model is for an arbitrator to be given the power to release cryptoassets from an escrow or multi-signatory account, or be given the power to amend the code of the smart contract. This could be used to fix an error or achieve a just outcome in the circumstances by reversing or continuing a transaction. However, to effectively (and safely) exercise such powers, the arbitrator would need to have experience in coding, as well as law.

A more complex, but powerful, model is that awards (or court judgments) are reflected on a blockchain by the miners or nodes. This is the structure on which the EOS arbitration system was based. The controlling nodes of the EOSIO blockchain were required to enforce awards issued under the ECAF Rules. This element proved controversial, as awards were not consistently "enforced" and it ultimately seemed to result in the discontinuation of the system.

This model has been attempted again recently. In *Tulip Trading v Bitcoin*, the claimant asked the English court to order software developers to modify several Bitcoin blockchains to restore to it control of stolen Bitcoin. The software developers denied being obliged to, or capable of, taking such action. However, the claimant reportedly already settled with the first defendant (Bitcoin Association for BSV) on the grounds that the first defendant implements software that permits court orders to be enforced directly on the BSV blockchain via what is described as an *independent "notary" system*. It requires adoption by miners on the blockchain to become effective and the adoption rate is unclear at present.

If an award is implemented directly onto a blockchain, this gives rise to several legal and policy issues.

The potentially ambiguous status of the process and the decision gives rise to a number of issues, including whether:

- A decision implemented directly "on chain" has *res judicata* effect, thus preventing future off-chain litigation on the same issue.
- The arbitrator is required to give reasons for their decision, as they are under many traditional international arbitration rules and national arbitration laws.
- The arbitrator, in conducting the process, is bound by national arbitration law and, if so, which one, and what rights of challenge are there to the decision, if any.
- The arbitrator's decision amounts to an arbitral award for the purposes of the New York Convention, although this may not matter if no enforcement action is ever taken in national courts and the award is, instead, given effect entirely "on chain".

These are pertinent questions in circumstances where, because of the potential anonymity of not only the parties but also the tribunal, the infancy of the concepts and the potential lack of experience of both users and tribunals, due process and outright corruption risks loom large.

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