

OPINION

Benefits and pitfalls of blockchain marriages

How can NFTs and smart contracts be applied to marriages, and what are the pros and cons?

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For The Straits Times

Blockchain technology has been used for several things since its creation, such as tokens, smart contracts and non-fungible tokens (NFTs). Its transparency and other unique features have led to other usages for it.

Last month, it was widely reported in India that a Pune couple had married on the blockchain, sparking interest in what a blockchain marriage entails.

Blockchain marriages can have a series of smart contracts and NFT combinations governing them. A couple's assets, such as cars, watches and digital art, including engagement rings, can be represented as NFTs.

Through a smart contract, couples could also agree upon a set of rules that define how these assets could go to either party in the event of a divorce.

WHAT ARE NFTS AND SMART CONTRACTS?

An NFT is a type of digital token which is unique and scarce. It is a unique proof of ownership of something, usually a digital asset. NFTs are digital versions of physical collectibles. Minting NFTs refers to the process of turning an item into a collectible or digital asset on the Ethereum blockchain.

A smart contract is a digital contract where the terms of agreement between users is set in code. A smart contract can also be programmed to self-execute when a set of predefined conditions are fulfilled.

Smart contracts can also hold assets, NFTs and cryptocurrencies within them.

These assets can be distributed upon execution when a set of conditions are met based on the code defined in the contract. For example, smart contracts can be embedded in an NFT to call and access assets within the NFT.

HOW DOES ONE MARRY USING NFTS?

To symbolise that the marriage has taken place, NFTs of a digital asset (usually a picture of wedding rings) can be minted and exchanged between the spouses. To mint NFTs on the OpenSea platform, which is reportedly the largest NFT marketplace, one would need a crypto wallet to be linked to one's profile on OpenSea.

Next, the digital file can be uploaded. Once completed, the NFT has been minted. Transferring an NFT (recording that a transaction has taken place between two parties on a blockchain) requires the network to do some computing. For this is the "gas fee", which is used to pay miners fees for including transactions in the blockchain. The miner who completes this transaction is awarded the Ether, the native cryptocurrency of Ethereum.

In April last year, Ms Rebecca Rose and Mr Peter Kacherginsky, both employees at the cryptocurrency exchange Coinbase, married on the Ethereum blockchain for US\$580 (\$780), including the mining fees. As part of the wedding ceremony, the couple sent to each other virtual NFT rings. This exchange can be seen publicly on the blockchain.

For the Pune couple, they had asked a "digital priest" to mint a photo of the engagement ring NFT on OpenSea, which was then transferred to the groom. The groom then transferred the NFT to his bride's digital wallet, following a 15-minute live wedding event on Google Meet.

WHAT ARE MARRIAGE SMART CONTRACTS?

Besides this symbolic gesture of a transfer of an NFT to symbolise the marriage, there are other applications of blockchain technology.

A manifestation of this is a marriage smart contract (MSC), which first surfaced in late 2018



Ms Rebecca Rose and Mr Peter Kacherginsky married on the Ethereum blockchain last April for US\$580 (\$780), including the mining fees. As part of the wedding ceremony, the couple sent to each other virtual NFT rings. A rise in the popularity of marriage smart contracts may spark a change of the law which would be better suited to deal with the purpose and function of such contracts, the writer says. PHOTO: REBECCA KACHERGINSKY/TWITTER

where two persons in Austria entered marriage while being bound by a blockchain-based smart contract, which was essentially a pre-nuptial agreement.

This MSC focuses on the management of spouses' common property and potentially as a tool for its division in the event of a divorce. MSC is not a contract in a strict sense but a specific expression of autonomy of the will in marriage contract law.

It is possible for couples to enter into an MSC on the Ethereum blockchain, which is a form of public ledger. This process requires an Ethereum smart contract to be written. Anyone who knows how to code can write a smart contract – in a programming language called Solidity, which is similar to Javascript – and deploy it to the network.

To deploy the smart contract to the Ethereum blockchain, the coder must have enough Ether. Deploying a smart contract is technically a "transaction". To transact on Ethereum blockchain, a user needs an account with a wallet address having some Ether. Once the user is connected to the network, the user can execute a transaction and pay a small transaction fee (gas fee) to write his transaction to the blockchain.

BENEFITS OF MSCS

Blockchain marriages have a number of benefits. First, unlike paper-based contracts, these MSCs are adaptable and can be managed during the life cycle of

the marriage. Assets such as property or stocks can be recorded on the blockchain through a process known as "tokenisation". Tokenisation is a process where some form of assets are converted into a token that can be moved, stored or recorded on a blockchain.

With the rise of digital assets and tokenisation of physical assets, it may also be possible that, in the future, every asset would be able to be digitally identified. The MSC would be able to facilitate this by having every new asset purchased by the couple tokenised and added to the wallet.

If a couple buys a new car, it would be added to the MSC and its ownership rights could be documented on the blockchain.

This would mean that all assets owned by the couple could be much more easily traceable.

Second, in an MSC, there is a divorce function that the spouses can invoke. Once triggered, assets are divided automatically. This would save parties much time and avoid lengthy divorce proceedings. As the terms are deterministically coded, they can trigger concrete actions in certain circumstances, such as division of matrimonial assets, which means that a smart contract is self-executing without the need for intervention.

Third, an MSC can be coded so that it can be periodically updated by the parties to the marriage. In a traditional marriage certificate, the marriage can be terminated only through a lengthy court-driven divorce. MSCs can make the process of divorce easier

so that unhappy spouses who feel trapped can leave the marriage.

DOWNSIDES OF MSCS

But there are also a number of pitfalls. First, as blockchains are nothing more than software codes, there is a need to retain a written agreement for interpretation purposes. Should the case proceed to trial, only an agreement in natural language would be the version that the court would be able to interpret and make a fair judgment on. Enforceability of the MSC is also a grey area at the moment, as traditional contract law principles may be ill-suited to deal with smart contracts.

Second, there is a case that couples will be able to enforce absurd clauses coded into the MSCs such as "must walk the dog at 7.30pm" or "set aside three hours a week for date night". This goes against the spirit of marriages in which two individuals are supposed to put aside their differences and work together to form a family unit. If spouses can break up because of a failure to fulfil one absurd clause, then this would seemingly destroy the essence of a marriage.

ARE MSCS THE PANACEA FOR ALL LEGAL ISSUES?

Proponents of MSCs would argue that younger couples these days are entering into pre-nuptials because of a lack of trust that the marriage would last, possibly due to shifting values and perception on marriages. On this premise,

MSCs could be one way to avoid the trouble and fees with lawyers, as divorces and division of matrimonial assets can be carried out much more straightforwardly.

Yet there are issues that the MSC cannot solve. There are child custody- and control-related issues that can be properly dealt with only by the courts in the event of a dispute between the couple. Parties may also eventually disagree on how the matrimonial assets are divided, especially if a spouse has spent time to look after the children in a long marriage.

The idea of an MSC is rather futuristic. Its establishment appears permissible only in jurisdictions with rather relaxed attitudes towards freedom of will in marriage contract law.

While MSCs might work very well if spouses scrupulously abide by the duties associated with the proper functioning of the MSC, the current legal framework hardly offers effective enforcement options in case of the contrary. This might be a major hindrance for the further proliferation of MSCs, for they embody rules without sanctions, which probably would not sound attractive to interested spouses.

Should the popularity of MSCs rise, it may spark a change of the law which would be better suited to deal with the purpose and function of MSCs.

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