

# Non-Fungible Tokens (NFT) and Intellectual Property Law

## Introduction

An NFT is a cryptographic tool using a suitable blockchain to create a unique, non-fungible digital asset. An NFT is used to represent other assets (such as a specific copy or version of a digital artwork, which can be stored on a blockchain or "off-chain", e.g., on a website). The blockchain keeps an immutable ledger of ownership of the NFT. Each NFT is powered by a smart contract (typically based on Ethereum's ERC-721 standard) and contains metadata that makes it unique. The hype surrounding NFTs is their potential use in proving ownership and authenticity of the asset which it represents.

NFTs have become a topic of interest in Intellectual Property Law, as the process of tokenization allows any work, such as artwork, literary work, marks, inventions, images, GIFs, or music, to be transformed into a digital asset and put up for sale on host marketplaces.

In this article, we examine 2 common questions about NFTs and Intellectual Property laws from a Singapore law perspective:

## Questions:

### A. Can acquiring ownership of an NFT representing an asset (in which IP rights subsist) grant the new owner of the NFT any IP rights in respect of that asset?

1. As NFTs have not been addressed by legislation or case law in Singapore, the relationship between NFTs and IP rights falls to be determined by the fundamental principles of the relevant IP and contract laws in Singapore. Applying these principles, acquiring ownership of an NFT representing an underlying asset does not necessarily grant the new owner of the NFT IP rights in respect of the asset. The rights obtained by the owner of the NFT depend on the terms of the underlying contract facilitating the transfer of the NFT.
2. This conclusion is premised on the fact that NFTs are conceptually distinct from the underlying asset it represents. As NFTs merely represent a unique copy of the asset, rather than the underlying asset itself, the purchase of an NFT without more does not grant the purchaser ownership of all rights (including IP rights) in the asset. An analogy thus may be drawn with the purchase of a replica of an artwork: such purchase, without more, does not grant the purchaser all intellectual property rights in the original artwork.
3. This position, however, can be varied by contract. As intellectual property rights (i.e., trade marks, patents, and copyright) are treated as a species of personal or movable property, it can be subsequently assigned or transferred to another party<sup>1</sup>. Intellectual property can also be licensed to third parties.
4. IP assignment or licensing can be effected either by the smart contracts which govern the transaction of NFTs, or by conventional means like text contracts, website terms of use, or deeds of assignment. An example of such licensing arrangements can be found in the Terms of Use for the popular "CryptoKitties"

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<sup>1</sup> Section 194 of the Singapore Copyright Act (Cap. 62) ("CA") for copyright; Section 36 of the Singapore Trade Marks Act (Cap. 332) ("TMA") for trade marks; Section 41 of the Singapore Patents Act (Cap. 221) ("PA") for patents.

NFTs, which are created by Dapper Labs as part of a blockchain game that allows players to purchase, collect, breed, and sell virtual cats <sup>2</sup>. Under those terms, the intellectual property rights subsisting in any “art, design, and drawings” associated with a “CryptoKitty” is owned by Dapper Labs <sup>3</sup>. However, the owner of a “CryptoKitty” NFT is entitled to a “worldwide, non-exclusive, non-transferable, royalty-free license to use, copy, and display” the underlying “CryptoKitty” art for limited purposes enumerated below <sup>4</sup>:

i. General Use. Subject to your continued compliance with these Terms, Dapper grants you a worldwide, non-exclusive, non-transferable, royalty-free license to use, copy, and display the Art for your Purchased Kitties, along with any Extensions that you choose to create or use, solely for the following purposes: (i) for your own personal, non-commercial use; (ii) as part of a marketplace that permits the purchase and sale of your Purchased Kitty, provided that the marketplace cryptographically verifies each Kitty owner’s rights to display the Art for their Purchased Kitty to ensure that only the actual owner can display the Art; or (iii) as part of a third party website or application that permits the inclusion, involvement, or participation of your Purchased Kitty, provided that the website/application cryptographically verifies each Kitty owner’s rights to display the Art for their Purchased Kitty to ensure that only the actual owner can display the Art, and provided that the Art is no longer visible once the owner of the Purchased Kitty leaves the website/application.

5. Seen in this light, NFTs are best understood as certificates which authenticate the NFT owner’s entitlement to rights granted by the owner of the underlying asset (with whom IP rights presumably vests in). Unless the latter expressly grants the purchaser of the NFT IP rights in the underlying asset, the purchaser will not acquire such rights in that asset.

**B. To what extent are the terms of the smart contract of each NFT recognized as a legal and effective contract between the parties?**

1. There is no statutory or judicial definition of a smart contract in Singapore.
2. There also appears to be no settled industry definition of a “smart contract”. Commentators have defined blockchain smart contracts in a myriad of ways— for instance, as “self-executing ledger-modification instructions”<sup>5</sup>, as “a computer protocol... intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract” without any control or interference from a third party, or as a “payment instruction” where the payment will be made if certain preconditions are met <sup>7</sup>.
3. Extrapolating from these definitions, smart contracts may thus be described as computer programmes or series of codes which incorporate the range of partly or fully self-executing contractual terms and conditions.

<sup>2</sup> <https://www.cryptokitties.co/terms-of-use>

<sup>3</sup> Section 3(B)(ii) of the Terms of Use.

<sup>4</sup> Section 3(C)(i) of the Terms of Use.

<sup>5</sup> Eliza Mik, *The Legal Problems Surrounding Blockchains: A Basic Overview* [2018] SAL Prac 13 at [13].

<sup>6</sup> Teo Yi-Ling, *Coming to Terms with Smart Contracts Part 1 – Fintech Security Challenges and Considerations* [2020] SAL Prac 23 at [5].

<sup>7</sup> Stella Cramer and Yadav Dharmendra, “Fintech Developments” in Dora Neo et. al, “Financial Services Law and Regulation” (Singapore: Academy Publishing, 2019) at [16.63].

4. The validity of smart contracts has not been considered by Singapore Courts. Thus, whether a smart contract will be recognized as a binding legal contract depends on whether the traditional contractual principles governing the formation of contracts are satisfied—namely:
  - (a) there is offer and acceptance of the terms;
  - (b) there is consideration provided;
  - (c) parties had an intention to create legal relations.
5. Applying these principles, there appears, in theory, to be no legal obstacle to finding that smart contracts are binding contracts. Whether there is offer and acceptance of terms (along with intention to create legal relations) are capable of being determined objectively, on the basis of the parties' conduct at the time of effecting the transaction. Where the transaction envisages an exchange—for example, an exchange of cash for an NFT—the requirement of consideration is likely to be satisfied.
6. This conclusion also finds support in the Singapore Court of Appeal decision of **Quoine Pte Ltd v B2C2 Ltd** [2020] 2 SLR 20; [2020] SGCA(I) 2. There, the Singapore Court of Appeal cited with approval the English case of **R (on the application of Software Solutions Partners Ltd) v Her Majesty's Commissioners for Customs and Excise** [2007] EWHC 971 (Admin), where the English High Court found that a contract made via an automated electronic process of contracting was valid applying the “basic legal principles” of contractual formation<sup>8</sup>. The Singapore Court of Appeal consequently observed, on the facts of the case, that cryptocurrency trading contracts which are concluded by the parties' respective deterministic algorithms without any direct human involvement were validly formed “at the point of time when an offer made by one algorithm was accepted by the other”<sup>9</sup>.
7. It therefore appears that the self-executing nature of smart contracts, which presumably excludes any direct human involvement, does not preclude a valid contract from being formed.
8. However, practical issues may arise where there are formality requirements to be satisfied before a contract is enforceable. Singapore law imposes formality requirements for certain classes of contracts. For example, Section 6 of the Singapore Civil Law Act (Cap. 43) requires certain classes of contracts to be made in writing and signed, failing which the contract will be rendered legally unenforceable. Similar issues may also arise when smart contracts are intended to facilitate the assignment of IP rights: under the relevant Singapore statutes, assignment of IP rights must be done in writing and assigned by or on behalf of the assignor<sup>10</sup>.
9. There is some ambiguity as to whether smart contracts satisfy the writing requirement, since they are written in programme codes rather than in natural language. This, however, should not be an impediment in light of Section 7 of Singapore Electronic Transactions Act (Cap. 88) (“ETA”), which provides that an “electronic record” satisfies the writing requirement if the information therein is “accessible so as to be usable for subsequent reference”. An “**electronic record**” is further defined under the ETA as “*a record generated, communicated, received or stored by electronic means in an information system or for transmission from one information system to another*”<sup>11</sup>. It is therefore plain that under the broad phrasing of the ETA, a written agreement need not necessarily be in natural language, so long as there is an electronic record which allows users to retrieve the information therein.

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<sup>8</sup> See [19], [20] and [64]-[68] of the judgment.

<sup>9</sup> See [96] of the judgment.

<sup>10</sup> Section 194(3), **CA**; Section 36(4), **TMA**; Section 41(6), **PA**.

<sup>11</sup> Section 2(1), **ETA**, under the definition of “electronic record”.

10. A smart contract seems to fit squarely within the above definitions, since the blockchain on which the smart contract is stored does store records by electronic means, and such records are accessible for subsequent reference.
11. Smart contracts arguably also satisfy the signature requirement. Section 8, **ETA** provides that the signature requirement is satisfied in relation to an electronic record if:
  - (a) a method is used to identify the person and to indicate that person's intention in respect of the information contained in the electronic record; and
  - (b) the method used is either —
    - (i) as reliable as appropriate for the purpose for which the electronic record was generated or communicated, in the light of all the circumstances, including any relevant agreement; or
    - (ii) proven in fact to have fulfilled the functions described in paragraph (a), by itself or together with further evidence.
12. An electronic signature may also be regarded as a “secure” electronic signature under Section 18, **ETA** if, through the application of a specified security procedure, or a commercially reasonable security procedure agreed to by the parties involved, it can be verified that an electronic signature was, at the time it was made:
  - (a) unique to the person using it;
  - (b) capable of identifying such person;
  - (c) created in a manner or using a means under the sole control of the person using it; and
  - (d) linked to the electronic record to which it relates in a manner such that if the record was changed the electronic signature would be invalidated.
13. Smart contracts transactions on a blockchain need to be affirmatively authenticated by each party using public-private key cryptography <sup>12</sup>. This cryptographic system involves the use of a pair keys: a public key (which may be known to others), and a private key (which is not known to anyone except its owner). The digital signature produced by this public-private key pairing is unique to every transaction, and can only be produced by someone with knowledge of the private key. Thus, the use of the public-private key cryptography likely satisfies Sections 8 and 18, **ETA**, as it produces a unique and reliable identifier of a party, and the means of doing so are under his sole control.
14. In sum, there appears to be no significant legal obstacle to finding that a smart contract constitutes a binding legal contract under Singapore law.

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<sup>12</sup> For more information on how public-private cryptography works in blockchains, see <https://www.mycryptopedia.com/public-key-private-key-explained/>.



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