

I. **The Civil Liability of the Programmer of Smart Contracts:**
Contractual Liability

Before we delve into the main issue under analysis, it is important to note that the question of the programmer's civil liability is of particular interest in the context of smart contracts, on the one hand because it is a new reality in the Mozambican legal system and, on the other, because it introduces a new perspective in the treatment of both obligatory and tortual liability and both fault and risk liability.

In this article we will deal with the programmer's contractual liability, discussing the role of the programmer in smart contracts and how they can be held liable for failing to comply with the provisions of a contract to which they are not a party.

- **What are smart contracts?**

Smart contracts are a protocol of computerized transactions that execute the terms of a contract. In essence, they are agreements of will automated through code, which aims to facilitate, enforce and control the execution of the contract.

In this way, the parties define the terms of the contract in the form of a code and the code is self-executing as the conditions/instructions defined by the parties come to fruition.

For lawyers, the term "Smart Contract" means a special set of obligations, while for computer scientists it represents a contract in terms of code.

- **Why hold a third party responsible in a contractual relationship?**

It's fair to ask how the programmer, as a third party in the contractual relationship, can be held liable for non-compliance with a contract to which it is not a party.

In a traditional contract, the parties assume reciprocal obligations, and smart contracts are no different. However, in smart contracts, the programmer's liability arises from the fact that it is not the users who operate them, but rather the codes and cryptographic keys introduced by the programmer.

In smart contracts, drafting and compliance imply the assumption of a set of specific responsibilities. These responsibilities can be related to the wording of the contract, both in terms of the legal text itself, the rules and concepts used, but also the computer code that makes up the contract.

A technical fault or faulty entry in the registration platform, for example, entail real problems, even though they are, in their genesis, in a digital world, they are problems with real and legal implications. The focus is therefore on the programmers of the smart contract's computer code, who write the clauses into computer code.

Let's move on to an example in which the programmer's liability can be raised in a contract between specific parties:

A and B intend to enter into a Smart Contract and include in it a condition

precedent, suspending the effects of the contract under the terms of Article 270 of the Civil Code (CC). To this end, a programmer is hired to enter the contract into the Blockchain¹ platform. The programmer in question drafts it but, through some oversight, fails to apply the condition precedent in the computer code, despite the fact that the parties had actually agreed to its inclusion. As soon as A fulfills its obligations under the contract, the code will take effect automatically, without taking any condition precedent into account, and the effects of the contract will be deemed to have been fulfilled. The contract comes into effect automatically and irrevocably, completely frustrating the interests of at least A.

In the context of the example described above, the solutions that result in the annulment of the contract, adopted in the face of: (i) error in the declaration²; (ii) error in the transmission of the declaration³ and (iii) error about the person or the object of the business⁴, are already excluded, as this is clearly a situation that refers to the fault or negligence of the programmer himself and not to the declaration of the parties.

There are those who argue, however, that the programmer's failure could be considered a miscalculation or clerical error, as provided for in article 249 of the CC, which results in the rectification of the declaration, which is especially problematic in the immutable context

of smart contracts due to the use of Blockchain technology.

Therefore, it would serve as a better "safety net" for the parties involved to make the programmer liable under the terms of Article 798 of the CC - liability of the debtor in the face of non-performance.

Although the programmer is not a party to the contract between the parties, he will still be subject to contractual civil liability, to the extent applicable, as he will certainly have entered into a contract with the parties to perform his function.

In any case, once the damage suffered by the parties as a result of the error in the code, and the costs and damages resulting from any delays and rewriting of the contract, have been determined, we believe that the programmer could therefore be held liable to the same extent, under the provisions of Article 1154 of the Civil Code, for professional negligence in writing the code.

¹ Blockchain is a distributed and decentralized technology for recording data electronically. Information is stored in blocks, linked together, making the information immutable.

The blocks are stored chronologically and protected using cryptography.

² Article 247 of the CC.

³ Article 250 of the CC.

⁴ Article 251 of the CC.