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Fintech platform for digitally trusted lending circles based on Ethereum blockchain

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This study will focus on the design and development of a software architecture for digitally trusted lending circles on top of blockchain technology to eliminate the currently prevailing problems in the existing physical and digital lending circles. Lending circles are believed by the majority as a healthy and effective mechanism as per the observations of the society and the related literature. Especially, in low to medium income societies, microfinancing techniques and their learnings are rapidly gaining in popularity, although they have the below limitations and pitfalls in its nature. Existing physical and digital Lending circles are formed within a closely associated community. Hence, they are not scalable towards higher pot sizes and cannot be applied to any random set of participants. Thus, they form those circles with those who are a part of the social capital of the leader of a given circle where the opportunity is limited to a set of participants. Apart from that, those lending circles do not have a proper mechanism of authentication and validation of the participants for a given lending circle. Hence, even the current mechanism of digital lending circles prevails a lot of issues. Furthermore, it does not create an opportunity for an arbitrary person to join a given lending circle although he is capable and genuine. Most sustainable solution to the problem would be a software architecture that incorporates a peer-to-peer network (i.e. blockchain) to establish the digital identity and the digital trust element. Furthermore, the new architecture enhances the process of lending circles and mitigate risks by performing critical tasks related to lending circles on the blockchain. The methodology of this research can be described under four major phases. During the first phase, a comprehensive study of literature was done along with the interviewing process to discover the existing limitations and pitfalls in existing software solutions for the lending purpose. The second phase focuses towards designing a novel architecture which can address the prevailing issues of the existing lending circles. A prototype is developed in the third phase to demonstrate the architecture designed under phase 2. Then, the developed prototype is tested with real users. Thus, the final outcomes of this particular study is an innovative software architecture and a proof-of-concept for combining trusted lending and identity management domain on top of blockchain concept along with the other applicable state-of-the-art technologies.

Keywords: Blockchain, digital identity, Fintech, lending circles