



White Paper

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Note: This paper is for general information purposes only. This paper reflects current opinions of the authors.

The opinions reflected herein are subject to change without being updated.

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1. Introduction

Everyday blockchain technology is changing the world and changing lives, yet the people most in need of the advantages brought by blockchain technology are the people most excluded from the blockchain revolution.

Blockchain technology gave birth to cryptocurrencies and new asset class was created: creating tremendous value \$1.89 Trillion in Apr 2022 [1]. However, much of this value is “trapped” in cyberspace. The majority of crypto value is locked in DeFi protocols that do not have a real world application. Bora will build bridges between the value in cyberspace and real world functions, Bora’s mission is to connect the liquidity on the blockchain with real world applications.

Bora’s vision is to fund the education of future leaders through community driven DAOs (Decentralized Autonomous Organization) funded thru the value in cyberspace. Bora will bring financial inclusion, accessibility, and sustainability to students all over the world.

Bora will operate similar to Cardano’s Project Catalyst. “Project Catalyst is a series of experiments which seeks to generate the highest levels of community innovation. Catalyst is bringing on-chain governance to the Cardano blockchain by allowing the community to self-determine priorities for growth. It also lets participants deploy funding to proposals which tackle challenges and capitalize on opportunities that arise in the life cycle of Cardano.” [2] Bora will draw inspiration from the Project Catalyst model by using Proposers, Voters and Community Advisors to operate and manage the Bora Protocol.

The Bora network has the BORA Token (\$BORA) as its native network token. The BORA tokens are used to reward users for investing and performing different operations on the network. Furthermore, Bora will create two additional tokens: vBORA and sBORA. vBORA will be used for voting and governance. sBORA will be used to bring transparency and quality assurance to the Bora protocol.

Lastly, Bora will incorporate DIDs (Decentralized Identifiers) also known as a Decentralized Digital Identity to function as KYC (Know your customer). Bora will onboard qualifications

obtained by the community to the Cardano blockchain for instant verification and proof of existence.

2. Why Cardano

“Our technology is underpinned by research. We have redefined what it means to create a global software platform through scientific methods. We have not compromised on our belief, or in our approach. To build a better future — secure, sustainable, and governable by the many — we have taken the road less travelled. The result of our efforts is a blockchain platform unparalleled in its capability and performance, and which is truly able to support global applications, systems, and real-life business use cases.” —

Cardano.org

Bora will build on the Cardano Blockchain. Bora chose the Cardano blockchain because of the following reasons:

- The Cardano team. Cardano was founded by Charles Hoskinson. Prior to founding Cardano, Charles was a co-founder of Ethereum [3]. Although Charles is seen as the leader of Cardano, the oversight of the advancement of the Cardano protocol ecosystem is decentralized and responsibilities are shared by Cardano’s partners: The Cardano Foundation, IOHK, and EMURGO [4].
- The research driven approach. Cardano decided to start from scratch and use academics to research the limits of what can be accomplished with blockchain technology. Based on academic research, Cardano was designed and build from the ground up to be the first third-generation cryptocurrency without scaling problems that was encountered by first and second generation blockchains (Bitcoin and Ethereum). Aside from scalability, the third-generation platform Cardano also seeks to address interoperability and sustainability issues that plagued the earlier generations [5].
- The programming language. Haskell is the basis for Plutus, Cardano’s smart contract programming language. Both off-chain and on-chain code for Cardano is written in Haskell, which allows Cardano to inherit the rich body of research that already exists within the Haskell ecosystem, instead of reinventing the wheel with a totally new and unproven smart contract language [6]. Bora support Cardano’s use of Haskell as base

language. The intrinsic safety from using a functional programming language will provide the needed security to protect our customers. Furthermore Haskell is proven through its years of use in the traditional finance sector and the Haskell ecosystem provides developers comprehensive libraries and tools to utilize.

- The advantages for BORA Token as a Cardano Native Token. Bora will have the BORA Token as a native token on the Cardano Blockchain. Tokens on the Cardano blockchain are very different from tokens on the Ethereum blockchain. On Ethereum, tokens get created as part of a smart contract. However, on Cardano the logic is not based on smart contracts, but rather based on the Cardano ledger [7]. This means the Bora token can have the same key functionalities as Cardano's native currency ADA. The BORA Token will have the same level of safety and security as ADA itself. Including access to the Cardano network tools for Governance (Voltaire) and Decentralized Identification (Atala Prism).

Security and Safety: In Cardano, all native token transfer logic is coded in the ledger. This ensures the predictable and uniform behavior of the system. The native tokens share the same security as ADA itself [7].

Governance: The Voltaire era of Cardano will provide the final pieces required for the Cardano network to become a self-sustaining system. With the introduction of a voting and treasury system, network participants will be able to use their stake and voting rights to influence the future development of the network [8]. BORA token holders will have the same ability to vote on Bora Protocol development. The future of Bora will be in the hands of the Bora community.

Atala Prism: Atala PRISM is a decentralized identity solution that enables people to own their personal data and interact with organizations seamlessly, privately, and securely. Atala Prism is a Digital ID, users credentials are instantly verifiable from anywhere, removing the need for third-party verification services [9].

- Cardano vision and values. Charles Hoskinson: "Cardano is an open platform that seeks to provide economic identity to the billions who lack it by providing decentralized applications to manage identity, value and governance" [10]. Bora is on a mission to connect the liquidity in blockchain cyberspace with real world applications to fund the education of Africa's future leaders. Bora believe the values and visions of Bora and the Cardano community overlaps. Sharing the same values and vision set up long term alignment and increases the odds of successfully accomplishing what the teams set out to do.

The five reasons outlined above is the reasons why Bora decided to build on the Cardano ecosystem. Everything about Cardano resonates and inspires Bora. The team behind the project, the research methodology, the programming language, the native token benefits and, the vision and values are all reasons why Bora decided to be part of the Cardano ecosystem.

3. Bora Product Vision

DID as KYC

All the students that use the Bora protocol have to complete a detailed KYC (Know Your Customer), consisting of various background checks, and reference letters from members of Bora or an recognized partner institute.

Bora will use the KYC information to create Decentralized Digital Identifications by integrating Atala Prism. Atala Prism was developed for the Cardano blockchain as a privacy preserving DID solution that adheres to the W3C DID standard [11].

Atala Prism integration with Bora will give users of the Bora protocol the ability to demonstrate, own and monetize their transaction data from the Cardano blockchain.

Qualifications recorded on the Cardano blockchain

After graduating, student qualifications will be uploaded to the Cardano blockchain and tied to the DID created for the student. The DID carries with it information — metadata — that will travel with the students throughout their academic life, and follow them into the economic world.

Decentralized Identification and transaction data allow users to build a credit profile, opening future doors to offer low interest uncollateralized loans for customers to mortgage loans, vehicle

financing and more. Furthermore, the tokenizing of a real world asset that is tied to a Decentralized Identification can act as collateral for a loan.

Project Catalyst Structure

Bora is building the Project Catalyst for student loans. “Project Catalyst is a series of experiments which seeks to generate the highest levels of community innovation. Catalyst is bringing on-chain governance to the Cardano blockchain by allowing the community to self-determine priorities for growth. It also lets participants deploy funding to proposals which tackle challenges and capitalize on opportunities that arise in the life cycle of Cardano.” [2]

Project Catalyst has empowered the Cardano community to Seed fund projects in order to grow the whole Cardano ecosystem. Bora will have a similar structure to Project Catalyst. Bora will empower our community to select the students and projects that will be funded.

The Bora community will consist of Proposers (Students requiring funding), Voters and Community Advisors.

Proposers

A proposer is someone who submits a proposal (request for student loan, request to fund thesis project) to the Bora protocol to be funded by the treasury. The proposal presents the need for the loan with a detailed presentation of the problem faced. Proposers are the students in need, the people that require funding to reach their educational aspirations. The proposal is the way to communicate the request for a student loan to the Bora community. Furthermore, the proposal will connect members of the community with each other.

Voters

A voter is holds vBORA and actively participates in the governance of the Bora protocol (DAO). Voters are the ultimate deciders of the direction of the protocol and which proposals obtain funding. Voters review proposers proposals and vote up or vote down the proposals they would like or dislike to see implemented. They are the stewards of Bora and by voting they bring Bora closer to its vision.

Community Advisor

A Bora Community Advisor (BCA) is a community member that participates in the quality assurance of proposals. BCA's have the task of reviewing proposals submitted to a given Education Pool/Vault and supplying quality information to voters and proposers. Bora Community Advisors will consist primarily from students with existing loans obtained from the Bora Protocol. Further, a community advisors is anyone who participates in the community to develop, assist, advise, improve the project.

BORA

Although Bora will have three different tokens, the main native token of the Bora protocol will be the BORA token. BORA will be a Cardano Native Token and as such will have all of the major traits of ADA by using the same underlying token logic, including the ability to pay network fees in Bora Token [12]. This is called Babel fees.

BORA holders will receive a percentage of the interest earned in the Bora student loan pools. BORA holders will also earn a percentage of the transaction fees of the Bora protocol.

vBORA

Governance of the Bora protocol will be done via voting. Holders of vBORA tokens will have the ability to a) Vote on which proposal get funded by the protocol and b) to propose new features for the protocol, vote on the proposed features and execute the approved proposals.

vBORA tokens can be obtained via two methods.

- 1) Stake BORA tokens in a smart contract to mint vBORA. The amount of vBORA to be minted will be dependent on the amount of BORA staked and the duration of the stake contract (3,6, 9 months etc).

2) Stake stablecoins in Bora Education Pools/Vaults. The Bora Education Pools/Vaults will be used to fund the students and projects approved by the community. Furthermore, users that stake stablecoins in the Bora Education Pools/Vaults will receive the majority of the APY obtained from the repayment of the loans taken out by the students through the Bora protocol.

Thru voting for proposal that gets funding, vBORA gives the providers of liquidity (users that deposit stablecoins in Education Pools/Vaults) the ability to decide where their provided capital will be deployed.

Bora will make use of the Voltaire governance protocol to operate as a Decentralized Autonomous Organization (DAO) governed by vBORA holders. The vBORA token is designed to be used in the future governance of the Bora protocol. vBORA holders who hold 1% or more of the total vBORA supply can submit development proposals, while any vBORA holder, regardless of how much they hold, is able to vote on these proposals. The vBORA token allows the Bora community to propose features, vote on the proposed features and execute the approved proposals.

Bora governance has been designed in a way that will eventually let the core Bora team step out of the decision-making process entirely, achieving a truly self-sustaining and completely decentralized protocol controlled by the Bora token holding community.

sBORA

Transparency and quality assurance will be incentivised with the sBORA token. Any student that submits a loan proposal request through the protocol will be required to hold a proportional amount of sBORA to the value of the loan requested. sBORA will serve both as collateral that will be staked within the loan agreement, and a show of trust that the particular student is actively involved within the community.

sBORA tokens will be issued as follow:

- 1) A minimal amount of sBORA will be issued upon successful completion of a student's DID and acceptance into the protocol.
- 2) sBORA will predominantly be issued through functioning as a Bora Community Advisor. BCAs have the task of quality assurance for the proposals that the Bora protocol funds. They identify and validate proposals, and filter for proposals that resonate with the Bora mission.

This means that the more actively involved with the protocol a student is the greater the loan amount they can take out.

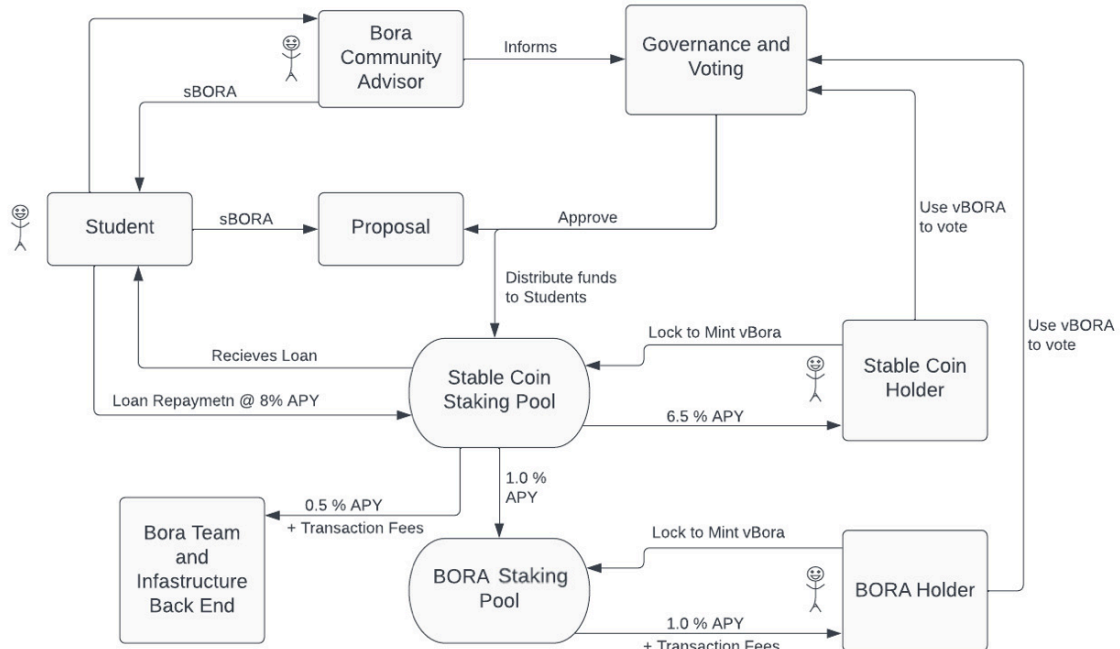
- 3) sBORA is also issued upon successful repayments of loans proportional to the amount of the loan once again building increased trust into the protocol. Conversely sBORA will be burnt with every default payment.

BCAs are incentivised to do first class quality assurance on proposals as successful repayment of loans insures a low APY on all the loans taken out. The low APY for student loans on the Bora protocol is depended on a low default rate. A low default rate is encouraged via the community mechanisms: 1) members vouch for each other to join the Bora protocol (DAO) - members are accountable to those that vouched for them. 2) Bora Community Advisors are affected by the default rate, it is in the whole communities interest to select and approve quality proposals to fund known individuals to ensure accountability.

sBORA and vBORA will be exchangeable for a small fee that will be paid in BORA this allows for active sBORA holders to exchange a portion of their sBORA for vBORA and gain greater voting and governance rights over the protocol and conversely vBORA holders may convert to sBORA to allow them to apply for a student loan or put forward a proposal to the community.

Bora Token Ecosystem

The Bora protocol will have 3 tokens in our ecosystem: BORA, vBORA and sBORA. All three tokens will have a different function, collectively the tokens will allow holders to operate and manage the Bora protocol, and its future, while simultaneously assuring quality and transparency.



Picture 1: Bora Protocol Token mechanisms

In future the Bora protocol will expand by forming SubDAOs. Each SubDAO's will have similar operational mechanics as the main (first) Bora DAO with investment tools. SubDAOs will be formed based on investment type (cohort), such as by country, economic status, course type, or age group. Effectively, any school (from anywhere, academic/ non-academic) can apply to create a SubDAO and add students who could benefit from a loan on the Bora protocol. Creating pools/vaults with a focus on a specific area or need will help members invest in the causes that align with each investor's individual values. Investments could also be made in several different portfolios to hedge risk across sectors.

Fund Management

Successful proposal approved by the Bora community will be funded from the Bora Treasury. The Treasury will consist of various pools (vaults) that will be funded with stablecoins. Users that deposit stablecoins into the education pools (vaults) will be rewarded in two ways:

- 1) Depositors will earn ~6% APY on the stablecoins deposited into the Bora pools (vaults).
- 2) Depositors will receive vBORA to enable depositors to participate in the governance of the Bora protocol and to vote on various funding proposals from the community.

The Bora protocol will offer student loans at a 8% APY. Students would take out the loan, service the interest payments while finishing their education, upon graduation and increased earnings, payback amount will increase to repay the principle down. The payback method takes pressure away from students during studies and offers the opportunity to repay more at a later stage when graduated students have increased their monthly income.

Different Bora pools (vaults) can be set up for each SubDAO, different pools (vaults) can be created to cater to a certain sector or area: Example is to create a pool focused on disabled students, or a pool focused on funding dentistry etc. Creating investment pools/vaults with a focus on a specific area or need, will help members fund the causes that align with each investor's individual values.

Bora vs Traditional Student Loan Organizations

Bora has a superior operating and management model when compared with traditional student loan organizations. The below table summarizes the main differences between the two operating models [13].

Challenge	Traditional Student Loan Sector	Bora Protocol
Operations	Traditional student loan organizations are inefficient with high operating expenses.	Decentralized operations run by the community with complete transparency.
Fund deployment	Traditional industry is plagued with fraud. Following the funds from depositors (donors) to students is opaque and unclear.	Community governance mechanism through proposer, voter and community advisors to deploy funds through the protocol.
Identity and details of Students	Paperwork is clumsy and inadequate. No connection or benefit to the student.	Identity and details wrapped into a Decentralized Digital Identity to adhere to KYC and to enable Web 3 identity mechanisms to build a credit record.
Contracts (Transparency and Accountability)	All contracts/activities are prone to manual error or fraud which is	Bora protocol based on Smart Contracts, no human error.
Cross Border Funding	Expensive and slow	Instant money transfers across the globe.
Sense of Ownership	No Ownership	Bora protocol members receive governance tokens (vBORA) and have a voice in directing the organization.
Qualification/Degree/Diploma	Paper format prone to losses and fraud.	Onboarded to the blockchain for instant verification and permanent storage – also connected to student DID.

Table 1: Challenges facing Bora and Traditional Student Loan Organizations

4 Further considerations

There are a number of features for the protocol that we are working on. The matters will be addressed in future whitepapers to provide further technical details.

- Oracle tied to Web2 income
- Fiat-on and Off ramps
- Integration with future CBDC (Central Bank Digital Currency)
- Onboarding Partnerships with educational institutes are needed.
- A mechanism to use mobile money as a fiat on-ramp
- A mechanism to move beyond the use of third party stable coins, possibly introduce own Bora fiat backed stable coin
- Mechanism to donate to a user on the Bora platform, for example using donations to sponsor a student (instead of a loan)
- Mechanism to lock tokens in a vesting periods to burn various Bora tokens
- Governance with Voltaire - The Bora token will be a Cardano Native Token and as such will have all of the major traits of ADA by using the same underlying token logic, including the governance protocol Voltaire.

5 BORA Tokenomics

The Bora network has the BORA Token (\$BORA) as its native network token. BORA tokens are used to reward users for investing and performing different operations on the network. Furthermore, Bora will create two additional tokens: vBORA and sBORA. vBORA will be used for voting and governance. sBORA will be used to bring transparency and quality assurance to the Bora protocol.

All BORA Tokens will be Cardano Native Tokens, as such the tokens will have all of the major traits of ADA by using the same underlying token logic, including Babel fees or the ability to pay network fees in the Bora Token.

BORA holders will receive a percentage of the interest earned from the Bora pools/vaults. BORA holders will also earn a percentage of the transaction fees from of the Bora protocol.

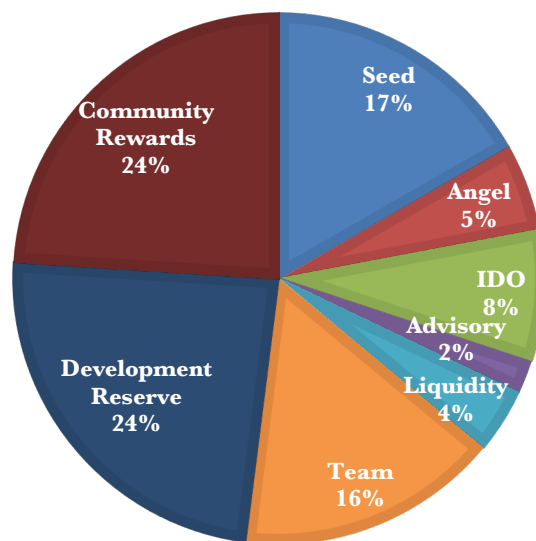
BORA Initial Distribution

At the Token Genesis Event (“TGE”), 1,000,000,000 BORA tokens will be created by the issuer. This will be the final and fixed amount of BORA in existence, and it will not change unless voted upon by the BORA community through the governance structure.

The BORA token will be distributed as follow:

TOKEN DISTRIBUTION

■ Seed ■ Angel ■ IDO ■ Advisory ■ Liquidity ■ Team ■ Development Reserve ■ Community Rewards



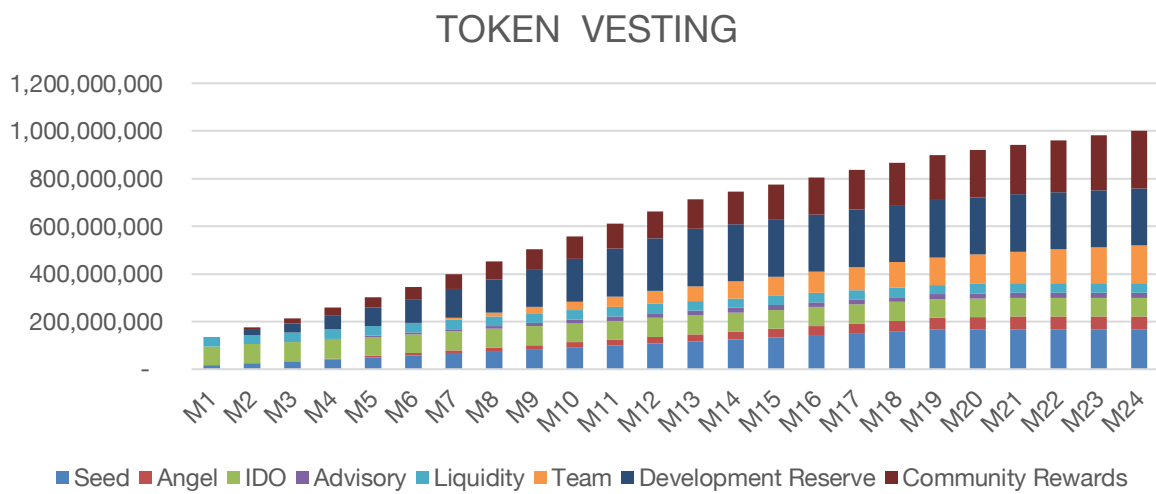
Picture 2: BORA Token distribution.

- **Community Rewards:** Bora will use 24% of all tokens to issue as community rewards. The rewards will be given for using the platform and to rewards BORA token holders that stake their BORA while the team build out the product over the coming months.
- **Angel, Seed and IDO rounds:** Bora will use 30% of all BORA tokens issued to fund the initial development of the protocol and product.
- **Development Reserve:** 24% of the tokens are allocated for the development reserve. The Development reserve is used to raise future funding in order to scale the product.

- Team and Advisory: 18% of all BORA Tokens issued will be used as incentive for the team and the advisors.
- Liquidity: 4% of all tokens will be used to fund the initial liquidity required for the launch of the protocol.

Token Vesting

The Bora Token vesting is designed to benefit our community and incentivize the team for the long term.



Picture 3 : Bora Token distribution and vesting schedule

All the tokens will be distributed after 24 months. The team tokens will be released over an 18 month period beginning 6 months after the TGE. In contrast, our IDO investors will have no lock up period and thus 100% of the tokens will be unlocked at the TGE.

Allocation	Tokens available at TGE	Cliff (months)	Duration
Seed	10%	T + 0	18 months
Angel	0%	T + 3	18 months
IDO	100%	T + 0	0 months
Advisory	0%	T + 3	9 months
Liquidity	100%	T + 0	0 months
Team	0%	T + 6	18 months
Development Reserve	0%	T + 1	12 months
Community Rewards	0%	T + 1	23 months

Table 2: Summary of token vesting schedule

6 Conclusion

We presented to you Bora, a protocol built on the Cardano blockchain to democratize access to capital for education. Bora will have the full stack of services in our application: capital onboarding, capital formation and capital deployment.

The Bora protocol takes inspiration from Cardano's Project Catalyst program. Similar to Project Catalyst, the Bora protocol will have Proposers, Voters and Community Advisors to manage the distribution of funds to students around the world. Furthermore, the Bora protocol will operate as a DOA. The Bora community will govern and operate the Bora protocol through voting with vBORA.

Bora will incorporate KYC and Qualifications/Degrees/Diplomas into DID (Decentralized Digital Identities) on the Cardano blockchain so students can build a credit record over time and have instant access to their qualifications and other web3 innovations.

Bora mission is to connect the liquidity on the blockchain with real world applications such as financing the education of our future leaders. Bora vision is to fund the education of Africa's future leaders through community driven DAOs (Decentralized Autonomous Organization) funded through the value in cyberspace.

Bora will bring financial inclusion, accessibility, and sustainability to students all over the world.

7 Références

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